Annual Progress Report (APR)

sustainable thriving achieving
East Dunbartonshire Council
www.eastdunbarton.gov.uk

2020 Air Quality Annual Progress Report (APR) for
East Dunbartonshire Council

In fulfilment of Part IV of the
Environment Act 1995

Local Air Quality Management

June, 2020

Local Authority Officer	East Dunbartonshire Council
Department	Environmental and Community Protection
Address	45 Southbank Drive Kirkintilloch
Telephone	0300 1234 510
E-mail	anne.prescott@eastdunbarton.gov.uk adeyemi.roland@eastdunbarton.gov.uk
Report Reference number	EDCAPR2020_2
Date	16 July, 2020

Executive Summary: Air Quality in Our Area

Air Quality in East Dunbartonshire Council

This report is the 2020 Annual Progress Report undertaken in accordance with East Dunbartonshire Council's statutory obligation under the National Air Quality Strategy.

The report considers measured pollutant concentrations across East Dunbartonshire for the calendar year of 2019 and considers the potential for exceedences of the air quality objectives.

In East Dunbartonshire, the main pollutants of concern are NO_2, PM_{10} and $PM_{2.5}$ and the source of pollutant is mainly due to the volume of traffic and congestion.

East Dunbartonshire Council has four continuous automatic analysers; one in Bishopbriggs, one in Bearsden, one in Kirkintilloch and one in Milngavie. This equipment downloads automatically and pollutant levels can be viewed via the Council web page or Scottish Air Quality website.

Monitoring over 2019 indicates a continuing overall downward trend in annual mean NO_2 concentrations, and levels further reduced at all four monitoring sites. There were no exceedences of the annual mean objective level at any of our sites in East Dunbartonshire and Milngavie recorded an all-time low of 19µg/m^3.

All four sites recorded levels well below 10% of the air quality objective for annual mean NO_2.

Annual mean PM_{10} levels increased slightly at both the Kirkintilloch and Milngavie sites however; there were no exceedences of the Scottish objective levels at any of the four continuous monitors.

Annual mean $PM_{2.5}$ levels were monitored at Kirkintilloch, Bishopbriggs and Bearsden with the level at Kirkintilloch increasing slightly from 6 µg/m^3 in 2018 to 8 µg/m^3 in 2019. The first year of measurement of $PM_{2.5}$ at Bishopbriggs and Bearsden were 7 µg/m^3 and 6 µg/m^3 respectively and well within the Scottish objective level of 10 µg/m^3.

There are no new major sources of emissions and the increase in commercial biomass installations observed in previous years appears to have slowed however, the installation of domestic wood burning stoves, and complaints concerning their use, continue to be received.

There are two AQMAs in East Dunbartonshire: one in Bishopbriggs and one in Bearsden. No new AQMAs were declared during 2019. Further NO_2 tubes were added to the network in response to concerns raised in an area of Bishopbriggs and to investigate background levels in several areas of Milngavie. Some of these diffusion tubes will be retained to continue to gather information for a longer period, and some will be removed.

East Dunbartonshire Council intend to revoke the Bearsden AQMA designation for exceedences of both the NO_2 and PM_{10} annual mean however; it is not our intention to revoke the Bishopbriggs AQMA at this stage.

Air quality is a material consideration in terms of planning which means that all local development is considered in terms of air quality to ensure implications are examined and considered in advance and appropriate consultation takes place with such partners as the Scottish Environment Protection Agency (SEPA), Transport Scotland and Scottish Natural Heritage (SNH).

Actions to Improve Air Quality

During 2019, we added some additional NO_2 tubes to our NO_2 diffusion tube monitoring network in response to concerns from residents in an area of Bishopbriggs and we will retain these at least until we have one full year of results.

During 2019, the membership of ECO Stars, a vehicle fleet recognition scheme introduced in 2017, increased to 133 members covering 4329 vehicles and helping to improve air quality through the promotion of both fuel efficient driving and ongoing improvement of the vehicle emissions standards of our freight throughout East Dunbartonshire.

Fuel Good Driving Sessions for staff were undertaken during November and December with a positive response and we hope to involve Fleet Services staff if further funding is forthcoming.

Two vehicle emission testing days were undertaken with 187 vehicles being tested. Awareness raising with vehicle idling patrols around our primary schools took place with an emphasis on those schools where most complaints arise. We additionally responded to individual complaints concerning engine idling.

The Bearsden Air Quality Action Plan was adopted by committee in August 2019 and a number of actions are complete, underway or on going as part of our commitment to improving local air quality.

Air quality is a material consideration in terms of planning which means that all local development is considered in terms of air quality to ensure implications are examined and considered in advance and appropriate consultation takes place.

Local Priorities and Challenges

Our priority in the coming year is to ensure the smooth running of our monitoring network to gain as accurate a picture as possible of air quality levels across East Dunbartonshire. Improvements to our network means that we will be able to monitor $PM_{2.5}$ at all four of our sites from May 2020 onwards. We also intend to revoke the Bearsden AQMA designation. Complaints concerning smoke and smell associated with wood burning stoves remain a challenge.

How to Get Involved

Further information on air quality in East Dunbartonshire can be found on the Council website HERE. You can visit the Scottish Air Quality website and view live air quality data in East Dunbartonshire at http://www.scottishairquality.co.uk. You can register for text and email alerts when air quality is forecast to be poor for the day ahead and can visit the Education pages and involve your children and family – all on the same link which also offers a free app for iPhone and Android for keeping you updated about air pollution in Scotland.

Table of Contents

List of Tables

List of Figures

1. Local Air Quality Management

This report provides an overview of air quality in East Dunbartonshire Council during 2019. 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 East Dunbartonshire 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.

A summary of AQMAs declared by East Dunbartonshire Council can be found in Table 2.1. Further information related to declared or revoked AQMAs, including maps of AQMA boundaries are available online at this Link[1].

We propose to revoke Bearsden AQMA (see monitoring section).

Table 2.1 – Declared Air Quality Management Areas

AQMA Name	Pollutants and Air Quality Objectives	City / Town	Description	Action Plan
Bearsden	• NO_2 annual mean • PM_{10} annual mean	East Dunbartonshire	The designated area incorporates a 60-metre-wide corridor along the A809 to the junction with Antonine Road and to the south beyond Canniesburn Toll to incorporate several road junctions. The eastern boundary is to the east side of Roman Road Carpark with a small section of	Bearsden AQMA Action Plan

[1] https://uk-air.defra.gov.uk/aqma/list?la=E&country=all&pollutant=all

AQMA Name	Pollutants and Air Quality Objectives	City / Town	Description	Action Plan
			Stockiemuir Road also incorporated.	
Bishopbriggs	• NO_2 annual mean • PM_{10} annual mean	East Dunbartonshire	The designated area incorporates a 60- metre-wide corridor along the A803 Kirkintilloch Road, Bishopbriggs, bordered on the South by the Council's boundary with Glasgow City and by a line 30 metres to the North of Cadder Roundabout.	Bishopbriggs Updated Action Plan

2.2 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 https://www.gov.scot/Publications/2015/11/5671/17. Progress by East Dunbartonshire Council against relevant actions within this strategy is demonstrated below.

2.2.1 Transport – Avoiding travel – T1

All local authorities should ensure that they have a corporate travel plan (perhaps within a carbon management plan) which is consistent with any local air quality action

plan. East Dunbartonshire Council has not adopted a corporate travel plan as yet although work to progress such a plan continues. The Plan proposes several alternative travel options to encourage a reduction in private car usage. If the Plan is adopted, it should result in a reduction of pollutant levels across East Dunbartonshire through the promotion of active travel, increased availability of electric pool cars and associated charging points as well as increased provision of cycle parking and facilities. Electric bikes are now also available to staff for use during the working day. It is hoped that a formalised corporate travel plan will be implemented but it is a complex task, which requires working with colleagues across a variety of services such as transport, sustainability and climate change, and environmental health to ensure air quality is given appropriate consideration.

2.2.2 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 Dunbartonshire Council does not currently have a Sustainable Energy Action Plan; however, consideration is being given to options for upscaling ambition in response to the nationally-declared Climate Emergency and related net zero target. In the meantime, corporate emission reduction continues to be a priority, with a variety of projects being undertaken which have a bearing on area-wide emissions; the Council's Annual Carbon Management Report[2] for 2018-19 provides further detail. In addition, area-wide air quality benefits are delivered via other agendas such as the Local Transport Strategy/Active Travel Strategy.

2.3 National Low Emission Framework (NLEF) Stage 1 Screening Appraisal for East Dunbartonshire Council

The NLEF[3], which is now part of the review and assessment process for LAQM reporting in Scotland, contributes to the Cleaner Air for Scotland strategy by aiming to improve local air quality in areas where air quality objectives are exceeded, or likely to be exceeded, primarily due to emissions from transport.

[2] https://www.eastdunbarton.gov.uk/filedepot_download/17047/3013
[3] https://www.gov.scot/publications/national-low-emission-framework/pages/2/

The NLEF is directly linked to Air Quality Action Planning (AQAP) for local authorities with Air Quality Management Areas (AQMAs), and will help to identify actions to improve local air quality within AQMAs. The NLEF appraisal takes the form of a two-stage process, as summarised in Table 2.2:

Table 2.2 – NLEF Appraisal Process

Stage		Outcome	Actions Required
1	Screening	• Decision on whether to proceed to stage two assessment	• Screening process to identify actions that will benefit air quality within the AQMA • Screening evidence should form part of the Annual Progress Report, with the decision agreed by Scottish Government and SEPA
2	Assessment	• Decision to proceed with introduction of LEZ or identification of alternative transport-related measures required to improve air quality • Stage two assessment report agreed by Scottish Government and SEPA	• NMF approach to support assessment of sources of pollution and options • Quantitative impact assessment (based on predicted change in pollutant concentrations) • Consideration of consequential impacts (e.g. congestion, export of pollution)

The NLEF Stage 1 Screening Appraisal for East Dunbartonshire Council is detailed in Table 2.3. It is the opinion of East Dunbartonshire Council that proposed measures in both AQMA's Action Plans are sufficient and there is therefore no need to proceed to a Stage 2 Assessment.

Bishopbriggs Air Quality Management Area (AQMA)

The Annual Progress Report Appraisal for 2018 in relation to Bishopbriggs AQMA stated that

"The monitoring has shown that NO_2 concentrations measured in 2018 are below the AQO (40µg/m3) for Bishopbriggs AQMA. The Bishopbriggs AQMA can consequently

be revoked for NO_2 annual mean, as the monitoring has also shown that the annual mean NO_2 concentrations have not exceeded in the past five years, and has with only the odd exception been below the 10% threshold of the AQO.

For PM_{10}, it has, in 2018, been within the 10% threshold of the AQO of 18µg/m^3 bracket, with a monitored concentration of 17µg/m3 " .

Dispersion modelling undertaken at the end of 2016 to assist us in making the decision for revocation indicated three hotspots along the A803 therefore additional monitoring in the form of passive diffusion tubes has been undertaken. Three years of results has shown that the annual mean NO_2 levels are within acceptable tolerances. Additionally, following the opening of Phase 4 of the Bishopbriggs Relief Road (BRR) during 2018 (a measure in the Bishopbriggs Action Plan) a number of residents raised concerns that in taking traffic off of the A803 through the centre of Bishopbriggs, pollutant levels are now of concern in the Wester Cleddens area. This is being investigated with the use of additional passive diffusion tubes and we intend to continue monitoring in this area.

At the end of 2019, a bid for City Deal funding was successful and major alterations to the A803 including the construction of Phase 5 of the BRR, a sustainable transport corridor with bus priority along the A803, connection into the North Glasgow Cityway active travel network, a Bus Park and Ride facility at Westerhill and various town centre public realm works are planned with the aspiration of being in place by 2025. It is the opinion therefore of East Dunbartonshire Council that now would not be the time to revoke the Bishopbriggs AQMA for NO_2 or PM_{10} as pollutant levels may rise during the extended period of work taking place. The long awaited supermarket development and retail upgrade at Bishopbriggs Cross including a proposed residential development of 147 houses next to the retail site is also planned for 2020.

Bearsden Air Quality Management Area (AQMA)

The Annual Progress Report Appraisal for 2018 in relation to Bearsden AQMA stated that

"The Bearsden AQMA recorded an exceeding concentration in 2016. Therefore, annual mean NO_2 concentrations have been compliant for only the past two

consecutive years, and because of this it is recommended that the AQMA should be kept in place for now for this pollutant.

For PM_{10} the Bearsden AQMA has been consistently below the 10% threshold therefore the PM_{10} designation should be revoked".

For 2019, the annual mean NO_2 concentration is 32µg/m^3 giving three years of consecutive results below the objective level and the PM_{10} concentration is 11 µg/m^3 therefore East Dunbartonshire Council intend to revoke the Bearsden AQMA designation for both NO_2 and PM_{10} annual mean exceedences.

Of the 29 measures in the Bearsden Action Plan, six measures are complete, one measure was decided against and the remaining twenty two are ongoing such as participation in vehicle idling patrols and enforcement. The ongoing and completed measures have, and continue to contribute towards improving the air quality in East Dunbartonshire.

There are additional proposed actions/measures in the Local Transport Strategy and Proposed Local Development Plan. New development must be linked to and enhance the transport network prioritising sustainable travel by linking development with active travel networks. Proposals include a quality bus corridor along the A81, junction improvements at key junctions including the A81 Milngavie Road/ B8049 Boclair Road/ B8049 Roman Road, improvements at Canniesburn Toll and improved signage and navigational aids to Bearsden Railway Station. These improvements are within or adjacent to the Bearsden AQMA and will further aid improving air quality. The full Transport Strategy can be viewed at:

https://www.eastdunbarton.gov.uk/local-transport-strategy

Table 2.3 – NLEF Stage 1 Screening Appraisal

No.	NLEF Stage 1 Screening Appraisal Question	Appraisal Response
1	What is the name of the declared AQMA(s)?	Bishopbriggs AQMA - The designated area incorporates a 60-metre-wide corridor along the A803 Kirkintilloch Road, Bishopbriggs, bordered on the South by the Council's boundary with Glasgow City and by a line 30 metres to the North of Cadder Roundabout. Bearsden AQMA - The designated area incorporates a 60-metre-wide corridor along the A809 to the junction with Antonine Road and to the south beyond Canniesburn Toll to incorporate several road junctions. The eastern boundary is to the east side of Roman Road Carpark with a small section of Stockiemuir Road also incorporated.
2	What pollutants are the AQMA(s) declared for?	Bishopbriggs AQMA was declared for exceedences of the annual mean objective level for NO_2 and for exceedences of the Scottish annual mean objective level for PM_{10}. Bearsden AQMA was declared for exceedences of the annual mean objective level for NO_2 and for exceedences of the Scottish annual mean objective level for PM_{10}.

No.	NLEF Stage 1 Screening Appraisal Question	Appraisal Response
3	What are the main sources of air pollution, or other factors, contributing to the declaration of the AQMA? *(If the main source is not transport–related no further screening is required).*	With regard to Bishopbriggs AQMA, the predominant sources of atmospheric pollution contributing to elevated levels of NO_2 and PM_{10} were identified as road traffic emissions and background (transboundary sources.) Source apportionment undertaken at the time indicated that a significant contributor to NO_X within the AQMA was HGVs, and a significant contributor to PM_{10} was re-suspension, tyre and brake wear. With regard to Bearsden AQMA, source apportionment indicated that the predominant sources of atmospheric pollution contributing to elevated levels of NO_2 and PM_{10} were road traffic emissions with further analysis indicating that volume and congestion was contributing the largest proportion of NO_X. The main contributor to PM_{10} was shown to be road traffic with emissions from cars, queuing, and brake and tyre wear contributing the largest component.
4	Are the declared AQMA(s) (and therefore area(s) of exceedance) restricted in nature geographically to a small area for which a Low Emission Zone (LEZ) would not be appropriate or proportionate (e.g. single streets, road junctions, small town centre)?	The area declared for each AQMA is fairly extensive and each AQMA area was decided upon after consultation with our Roads and Traffic colleagues. Each AQMA included all predicted areas of exceedence at the time of declaration.

East Dunbartonshire Council

No.	NLEF Stage 1 Screening Appraisal Question	Appraisal Response
5	Do the monitored concentrations within the AQMA(s) meet the air quality objective(s)? If yes, for how long has compliance been achieved? If not, what are the extent of the exceedances?	With regard to the Bishopbriggs AQMA, the monitored concentrations meet the air quality objectives. For annual mean NO_2 and PM_{10}, compliance has been achieved for the last 5 years. With regard to the Bearsden AQMA, the monitored concentrations meet the air quality objectives. For annual mean NO_2, compliance has been achieved for three years. For annual mean PM_{10}, compliance has been achieved for five years.
6	What is the current trend for pollutant concentrations within the AQMA(s) (state the trend for each pollutant declared)?	The current trend for annual mean NO_2 and PM_{10} in the Bishopbriggs AQMA is downwards. The current trend for annual mean NO_2 and PM_{10} in the Bearsden AQMA is downwards.

No.	NLEF Stage 1 Screening Appraisal Question	Appraisal Response
7	Are there any major planned developments which could impact air quality within or surrounding the AQMA(s)?	An application for City Deal funding in the Bishopbriggs area has recently been successful and a variety of works including completion of Phase 5 of the BRR, a sustainable transport corridor with bus priority along the A803, connection with the Glasgow North Cityway Active Travel Network, a Bus Park and Ride facility at Westerhill and various public realm works are planned, with the aspiration of having them in place by 2025. Revocation of the Bishopbriggs AQMA was postponed several years ago due to the proposed redevelopment of Bishopbriggs Town Centre which included a new build supermarket and mixed use development with housing at Bishopbriggs Cross. These proposals are only now under consideration for planning permission and now include demolition and rebuilding of the existing supermarket with a petrol station, construction of 147 residential units and associated works.
8	What are the current trends for vehicle movements within the AQMA and surrounding areas?	Bishopbriggs and Bearsden AQMAs are transport related and although pollutant levels have reduced over the intervening years since declaration, there is no evidence to suggest that the trend for vehicle movements is downwards.
9	Provide evidence showing how the AQAP (and associated plans, programmes and strategies) will deliver significant improvements towards achieving the air quality objective(s) in as short a timescale as possible?	See Table 2.2 https://www.eastdunbarton.gov.uk/local-transport-strategy

2.4 Progress and Impact of Measures to address Air Quality in East Dunbartonshire Council

East Dunbartonshire Council has taken forward a number of measures during the current reporting year of 2019 in pursuit of improving local air quality. Details of all measures completed, in progress or planned are set out in Table 2.2. More detail on these measures can be found in the air quality Action Plan relating to each AQMA. Key completed measures in the Bearsden Air Quality Action Plan are:

- Air Quality Planning Guidance[4] has been adopted,
- Bearsden Cross junction upgraded to Mova 8,
- Master naught vehicle tracking installed in all fleet and pool vehicles,
- Fortnightly fleet waste collection as standard. The change to fortnightly fleet waste collection has had the biggest positive impact on local air quality.

A number of measures are dependent on funding and will continue as funding allows such as vehicle emission testing, Eco Stars, Eco Driver Training and Tree and Wildflower planting.

The remaining 5 measures outstanding in the Bishopbriggs Air Quality Action Plan should all now be able to be addressed due to obtaining City Deal funding.

[4] https://www.eastdunbarton.gov.uk/filedepot_download/595/2508

Table 2.4 – Progress on Measures to Improve Air Quality

Measure 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
1	Maintain contact with Scottish Govt re adoption of national air quality measures	Policy Guidance and Development Control	Increase focus on background Concentrations of PM and encourage national action	East Dunbartonshire Council		Ongoing	Compliance across East Dunbartonshire with Scottish Objective levels	Dispersion modelling in several areas indicates compliance.	Three out of four monitoring sites capable of monitoring NO_2, PM_{10} and $PM_{2.5}$. Funding in place to install fourth $PM_{2.5}$ monitor.	Summer 2020 for installation of fourth monitor to measure $PM_{2.5}$	Ongoing target of reducing pollutant levels

East Dunbartonshire Council

Measure 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
2	Promote air quality with planning and transport strategies and other Council Plans	Policy Guidance and Development Control	EDLP 2 is currently underway. The LDP provides the planning context for the Local Transport Strategy, which has just been approved. The LDP and Local Transport Strategy integrate air quality, planning development and transport planning to mitigate the air pollution effects of traffic. Develop a broad AQMA steering group (for the Bearsden AQAP) and maintain regular and on-going communication between members of the group during the plans implementation. Look for opportunities to enhance joint working between Council Services to encourage potential air quality implications of existing and future Council strategies.	East Dunbartonshire Council		All of these actions are underway and adopted as standard practice Regular meeting and communication among main stakeholders to progress Bearsden AQAP and overlapping strategies Regular joint working takes place		Local planning considerations aim to mitigate the cumulative negative air quality impacts of new development	Local Development Plan 2 is currently underway. The Local Transport Strategy 2020-2025 has just been approved.	Ongoing process for continual updating	Air quality planning guidance has been adopted. LTS has been approved. LDP2 due to be submitted 2021 for adoption in 2022

East Dunbartonshire Council

Measure 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
3	Junction improvements- Feasibility study	Traffic management	Model of junction improvements at Bearsden Cross. Provide Council with evidence to assist in decision whether to make appropriate junction improvements.	East Dunbartonshire Council	This work was undertaken during 2013 and no discernible benefit anticipated.			Low	This measure was again reconsidered in 2016 but dismissed.		This measure was re evaluated as part of the consultation response to the Draft Action Plan however, it is no longer under consideration.
4	Intelligent Traffic Management Systems	Traffic management	Identify appropriate locations and implement intelligent traffic management systems to improve traffic flows Identify improvements at junctions and consider modifying surrounding environment to achieve maximum benefit	East Dunbartonshire Council		Junction upgraded to Mova 8 during 2018.		Medium	Further upgrades are available therefore funding may be sought to improve junction.	Work complete 2018.	Works completed with air quality funding. There are no current plans for any further upgrades.

East Dunbartonshire Council

Measure 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	Parking Controls	Traffic Management	Decriminalise parking Extend the controlled parking zone Additional yellow lines near schools and hotspots	East Dunbartonshire Council		Off street decriminalised parking introduced summer 2016		Small	Charges introduced in Council Car Parks Further car parks now included in charging scheme.	Ongoing roll out of controlled parking zones. Now includes: West Chapelton Area, Restricted Parking Zone. West Chapelton Area, Waiting and Loading Restrictions. Bearsden Hub, Car Park Charging introduced	Plans to progress Schools orders and Town Centre Amendments are currently on hold.
6	Mitigation of emissions from developments within and around the AQMA	Policy guidance and development control	Developments within or impacting on AQMA are reviewed for air quality impacts and where necessary all practical emission mitigation options are considered and implemented. Ensure through planning that all construction / demolition sites have a Dust Management Plan.	East Dunbartonshire Council				Small to medium impact	Regular review and updating of LDP and LTS takes account of policies consistent with air quality objectives. Mitigation includes active, sustainable travel measures.	Ongoing standard practice.	All developments requiring a full air quality impact assessment to include a Dust Management Plan as standard

East Dunbartonshire Council

Measure 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	Air quality planning guidance	Policy guidance and development control	Improving links with Local Planning and Development Framework ensures a consistent approach to air quality impact assessment	East Dunbartonshire Council	2017	2018		Small to medium	Planning guidance adopted 2018.	This measure is now complete although guidance will be updated as necessary	Developers will know at the start of the planning process what is expected from them.
8	Fleet waste collection	Traffic Management	Reduce emissions from source by reducing number of vehicles on road at any one time Seven day a week operation has reduced the overall number of vehicles required to operate the service	East Dunbartonshire Council		Implementation complete		Small - medium	Fortnightly fleet waste collection as standard	This measure is now complete with no plans to make any further alteration	Altered shift patterns leads to less heavy vehicles in use across EDC area at any one given time. Early start and weekend working spreads the use of vehicles reducing peak travel time emissions

East Dunbartonshire Council

Measure 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
9	Council fleet replacement programme	Vehicle fleet efficiency	Continue current replacement programme Pool EDC will attempt to increase the availability of electric/hybrid vehicles to appropriate staff Fleet EDC will investigate options available for making use of electric/hybrid vehicles as part of the Council fleet Increase number of charge points across EDC area	East Dunbartonshire Council		Ongoing		High	27 electric fleet vehicles now in use.	No planned completion date- pool EDC vehicles continue to be upgraded with increased availability of electric vehicles.	No current plan to purchase a hybrid fleet vehicle Increase in charge points from 5 to 14 during 2019 with a view to continually increasing throughout the area.

East Dunbartonshire Council

Measure 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
10	Environmental fleet recognition scheme	Vehicle fleet efficiency	Environmental Fleet Recognition Scheme rates individual vehicles and the overall operation of a vehicle fleet, using a star rating system, to recognise levels of operational and environmental performance. It aims to reduce the energy used by commercial and passenger transport fleets by encouraging increased adoption of fuel efficiency measures. This will bring about benefits for members through more efficient operations, reduced fuel costs and emissions.	EDC, TRL and all members		2017 onwards		Medium	Approx 118 vehicles within EDC Fleet assessed and graded at 4* with 65 vehicles at 5* Approx 133 members overall of the EDC scheme with 4329 vehicles.	Current contract runs until May 2020.	This measure will continue as funding allows

East Dunbartonshire Council

Measure 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 idling enforcement	Vehicle fleet efficiency	The Council has adopted the necessary enforcement powers to allow staff to undertake monitoring of engine idling, including buses, and where appropriate, enforce financial penalties for non-compliance Regular vehicle idling awareness raising campaigns are undertaken with distribution of leaflets and advice	East Dunbartonshire Council – Community Protection		Powers adopted in 2006		Small	Council continues to promote awareness and benefits in regard to reduction of vehicle idling via billboards and advertising campaign on PSV vehicles and bus stops. Also planning Posta Bike for awareness raising outside schools	Ongoing as resources allow	No fixed penalties issued as policy of education is adhered to. Drivers always asked to switch off.

East Dunbartonshire Council

Measure 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	Management of biomass installations	Promoting low emission plant	Suitably manage biomass installations in the domestic sector Suitably manage biomass installations as part of the planning process	East Dunbartonshire Council		Due to impending change in legislation ie all new appliances to be exempt, all planning applications involving a wood burning stove have an appropriate informative added		Medium	Reactive work undertaken in responding to complaints Many installations do not require planning permission A number of installations have not been approved and go undetected until complaints are recieved		Biomass has a negative impact on air quality unless appropriate abatement is installed. No new large scale applications received since reduction of incentives
13	Quality bus/bike partnerships	Promoting travel alternatives	Consider extending opportunities to improve infrastructure and create further cycle/bus corridors in other areas of Bearsden Expand the network with new cycle and walking routes both within towns and the countryside dedicated for active travel use to avoid conflict with motor vehicles	East Dunbartonshire Council, SPT and Sustrans					Core paths in Bearsden upgraded 2017/18. New links created to provide traffic free link to bus stop on Drymen Road and Bearsden Academy. 2000 cycle maps printed with more to follow.		In 2016, a decision was made by Council not to proceed with Bears Way Phase 2. There has been no amendment or alteration to this decision.

East Dunbartonshire Council

Measure 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	Council smart working	Promoting travel alternatives	Smart working means being more flexible about when and where employees work and how technology is used to find new and more efficient ways to do things.	East Dunbartonshire Council		Already implemented		Medium	Many staff regularly work from home with the capability being regularly extended		Less staff travelling to work. Flexible working also changes the peak travel pattern
15	Green travel planning	Promoting travel alternatives	Travel plans aim to address the negative impacts of car travel, notably single occupancy vehicles, by encouraging car sharing, or a shift to more sustainable forms of transport, such as walking, cycling and public transport; or reducing the need for travel.	East Dunbartonshire Council				Small	Cycle parking introduced at Bearsden Community Hub, Pool bikes are available for staff use at hubs throughout East Dunbartonshire Council area		Green travel alternatives are encouraged for EDC staff.eg Electric bike trials held.
16	School travel plans	Promoting travel alternatives	All new build schools within EDC require a school travel plan as part of their planning permission ensuring pupils are catered for and presented with sustainable travel options.	East Dunbartonshire Council		Already implemented as standard		Small	All new build schools within EDC include travel plans as standard		It is incumbent upon the school to keep existing school travel plans up to date

East Dunbartonshire Council

Measure 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
17	Air quality awareness raising and education	Public information	Raise awareness in schools by involving pupils in science projects, art competitions and planting days Raise awareness among EDC staff via regular informative updates	East Dunbartonshire Council		Ongoing		Small	Various projects already undertaken and more planned in schools as part of science and maths curriculum	Ongoing	Projects undertaken as funding allows
18	Travel plans for large employers	Promoting travel alternatives	Strategic development and regeneration team to ensure all relevant commercial planning applications have travel plan conditions applied in accordance with current best practice Offer assistance to existing companies to aid the process of creating a travel plan	East Dunbartonshire Council		Ongoing		Small			No further work has taken place in this area.
19	Eco driver training	Vehicle fleet efficiency	Training for Council Staff as well as fleet. Fuel good training can help individuals become more efficient drivers either at work or during leisure and help save money on fuel costs	East Dunbartonshire Council	2019	2019	No of staff completing Eco Driver Training	Small	37 employees trained in Fuel Good Driving Techniques	37 employees trained in Nov/Dec 2019.	Sessions offered to all staff who drive as condition of employment and added to CPD. More planned if funding bid is successful

East Dunbartonshire Council

Measure 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
20	Council pool cars – priority spaces and car sharing	Vehicle fleet efficiency	Council pool cars to have prioritised parking spaces Car sharing database to be instigated (introduced in 2016)	East Dunbartonshire Council, SPT and Liftshare				Small	Priority spaces designated for pool cars at all Council buildings 117 employees signed up to SPT Journey share/Liftshare		Relaunch due of car sharing availability website and database. No overall increase in number signed up.
21	Vehicle emission testing	Vehicle fleet efficiency	EDC undertakes vehicle emission testing within AQMAs and other parts of the area. Fixed penalty notices are served for vehicles failing to meet the appropriate emission standards, although there is an option to have a faulty vehicle repaired and re tested.	East Dunbartonshire Council, North Lanarkshire Council, Police Scotland		Powers adopted in 2006	No of fixed penalties served	Low	The no of vehicles tested during 2019 was greatly reduced from previous years due to the change in emphasis to awareness raising and idling patrols	Ongoing as funding allows	183 tested in 2019. No fixed penalty notices served

East Dunbartonshire Council

Measure 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
22	Vehicle tracking and telematics	Vehicle fleet efficiency	Vehicle tracking systems help monitor and manage fleet operations providing real time information which can help towards the reduction of fuel use and emissions, carbon reduction, encourage better driving techniques and put a stop to any council vehicles engine idling	East Dunbartonshire Council				Small	Master naught vehicle tracking installed in all fleet and pool vehicles	Complete	No plan to upgrade
23	Improvements to SPT prioritised bus stops	Promoting travel alternatives	Upgrading of bus stops to encourage active travel	East Dunbartonshire Council, SPT				Small	Improvements to bus stops on A81 and A809 Drymen Road have been undertaken over last three years.	The process of improving SPT bus stops will continue as required and as funding allows.	New Real Time Passenger Information units have been installed at ten bus stops in Bearsden with an additional 8 programmed for 2020/21. There has also been improvements to bus shelters within Bearsden Town Centre.

East Dunbartonshire Council

Measure 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
24	Soft measures – Healthy Habits	Promoting travel alternatives	The Healthy Habits campaign seeks to inspire people to choose active travel such as walking and cycling.	East Dunbartonshire Council				Small	The Healthy Habits project is ongoing with new initiatives continually developed to encourage local people to walk and cycle more often. Healthy Habits maps and signs regularly reviewed, updated and distributed.	Projects will continue as funding allows.	EDC's new Walking and Cycling Map was launched in 2019 with great success, new signage and route markings are due for completion Summer 2020.

East Dunbartonshire Council

Measure 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
25	Domestic emissions and fuel consumption awareness raising	Public information	Support for awareness raising of energy efficient measures by Scottish and UK government	East Dunbartonshire Council				Small	Energy efficient boilers installed in all Council owned Housing properties. Further works to include external wall insulation rewiring, improving ventilation in kitchens and bathrooms and double glazing due for completion in all properties by end of 2020/2021. Solar thermal projects complete or underway in Bearsden.	2021	Some of these measures are undertaken as funding allows.
26	Tree and wild flowers planting	Public information	Undertake planting schemes within or adjacent to Bearsden AQMA	East Dunbartonshire Council		Undertaken when funding is available		Small	Trees, shrubs and wildflower meadows planted throughout Bearsden AQMA	Ongoing as funding allows	Planting undertaken where funding allows

East Dunbartonshire Council

Measure 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
27	Joint health improvement plan	Public Information	The Joint Health Improvement Plan seeks to work with local communities and residents in joint effort to improve health and address health inequalities	East Dunbartonshire Council, NHS Greater Glasgow and Clyde				Small	Ongoing Increased awareness of increasing active travel to help control the impact of obesity on the NHS		Environmental measures include promoting good quality air by tackling local air pollution; addressing environmental incivilities such as illicit tipping, graffiti and dog fouling. Other environmental issues such as reducing carbon emissions, promoting green space for active travel, sustainable development and community transport schemes also feature prominently on partnership agendas.

East Dunbartonshire Council

Measure 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
28	Green Infrastructure	Public Information	Expand the programme of installing sustainable energy measures	East Dunbartonshire Council					LDP Supplementary Guidance on Green Infrastructure and Green Network is now published and available on line		Solar panels still being installed. Increase in CHP installations. All Council new build now with CHP.
29	Taxi Licensing	Promoting low emission transport.	Consider means of reducing emissions from taxis and private hire vehicles in AQMA	East Dunbartonshire Council							Proposal to go before committee to increase frequency of testing for vehicles 5 years and over to be tested every 6 months

BISHOPBRIGGS ACTION PLAN UPDATE – REMAINING OUTSTANDING MEASURES

Measure 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	Support the construction of phases 3 to 5 of the Bishopbriggs Relief Road (BRR) to the east of Bishopbriggs.	Traffic management		EDC & Transport Scotland		Phase 3 opened 2015. Phase 4 opened June 2018		Medium		20205	A bid for City Deal funding has been successful and BRR phase 5 is now expected to progress
7	Investigation of options in Bishopbriggs town centre to improve access to Bishopbriggs station and opportunities for active travel.	Promoting travel alternatives		Network Rail & EDC				Small			This measure cannot proceed until the entire BRR is complete
8	Investigate options for a Bishopbriggs East / Westerhill transport hub comprising a bus terminal, rail halt and park and ride facility.	Promoting travel alternatives		EDC, SPT & Transport Scotland							A bus park and ride is planned as part of City Deal funding

East Dunbartonshire Council

Measure 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
9	Where possible encourage the establishment of partnerships between public transports to provide more joined up inter-modal transport options.	Promoting travel alternatives		EDC, SPT & local bus operators					Funding only secured late 2019/early 2020		A sustainable transport bus corridor is planned as part of the City Deal funding package
11	Produce a public transport access map.	Public information		EDC				Small	A public transport map would be best undertaken by SPT given their database of registered bus services etc. SPT currently has no funding available for such an undertaking		

It should be noted that, at the time writing, a bid for City Deal funding has been successful. The funding will primarily be aimed at Bishopbriggs with the intention of rolling out the following:

Completion of BRR 5
Sustainable transport corridor along the A803 with bus priority throughout the route
Connection with the Glasgow Active Travel network across North Glasgow
Extensive public realm works within Bishopbriggs Town Centre

These proposals have implications for the remaining measures in the Bishopbriggs Action Plan, and for the Bishopbriggs AQMA therefore no further action will be taken by Environmental Health until more is known about the overall detail.

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.

East Dunbartonshire Council undertook automatic (continuous) monitoring at four sites during 2019. Table A.1 in Appendix A shows the details of the sites. National monitoring results are available at http://www.scottishairquality.scot/latest/summary?view=la.

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

3.1.2 Non-Automatic Monitoring Sites

East Dunbartonshire Council undertook non- automatic (passive) monitoring of NO_2 at 56 different sites during 2019. This includes ten additional tubes which were added to the network in February. Table A.2 in Appendix A shows the details of the sites.

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

3.2 Individual pollutants

The air quality monitoring results presented in this section are, where relevant, adjusted for annualisation and bias. The Bias factor of 0.85 was used and this is the result of a local colocation study. This report only considers recorded nitrogen dioxide levels from January – December 2019. Further details on adjustments are provided in Appendix C.

3.2.1 Nitrogen Dioxide (NO_2)

Table A.3 in Appendix A compares the ratified and adjusted monitored NO_2 annual mean concentrations for the past 5 years with the air quality objective of 40µg/m^3.

For diffusion tubes, the full 2019 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 5 years with the air quality objective of 200µg/m^3, not to be exceeded more than 18 times per year. None of the diffusion tubes show a calculated annual mean of over 60 ug/m^3 and therefore are not considered likely to have monitored an exceedance of the 1 hour objective. All automatic monitoring data in 2019 continued to show an overall downward trend in annual mean NO_2 levels since 2014. The levels are the lowest recorded in the last 5 years while concentrations at all automatic sites continue to meet the annual mean air quality objective of 40 µg/m^3.

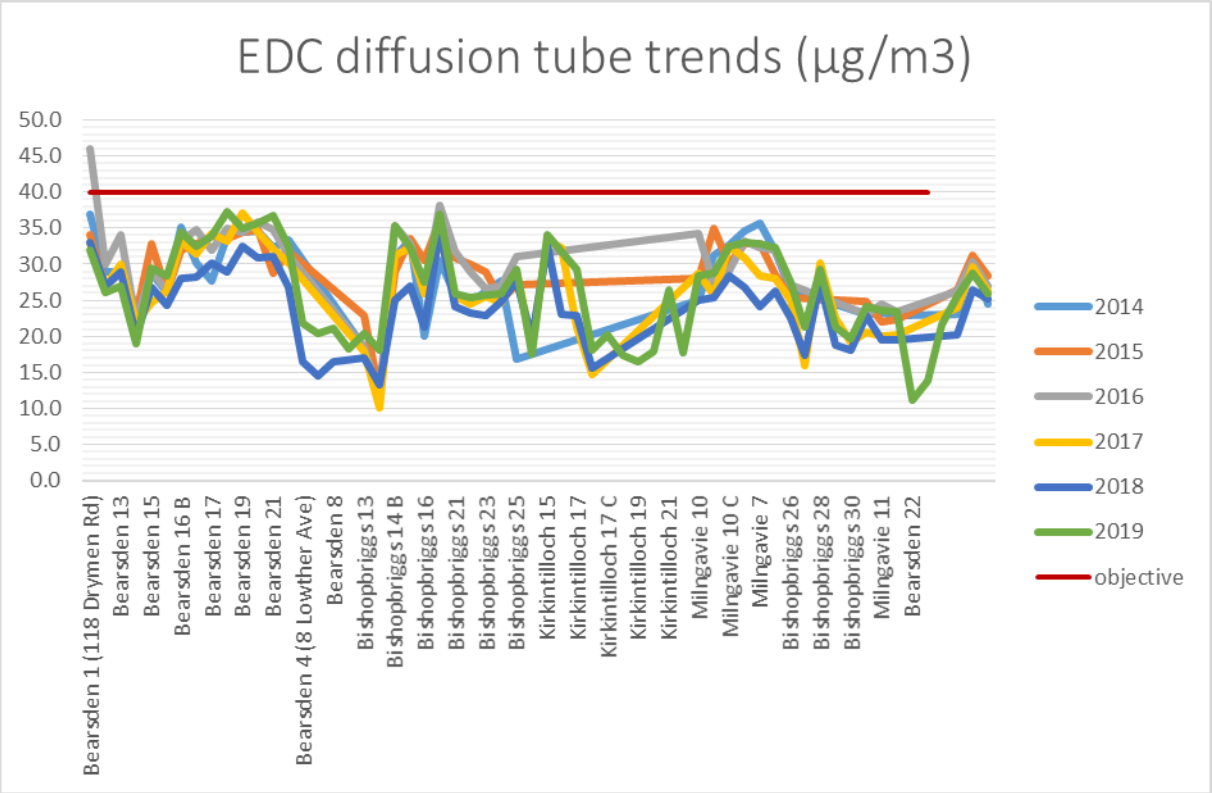

Figure 1 Trends in Annual Mean NO_2 Tubes Concentrations

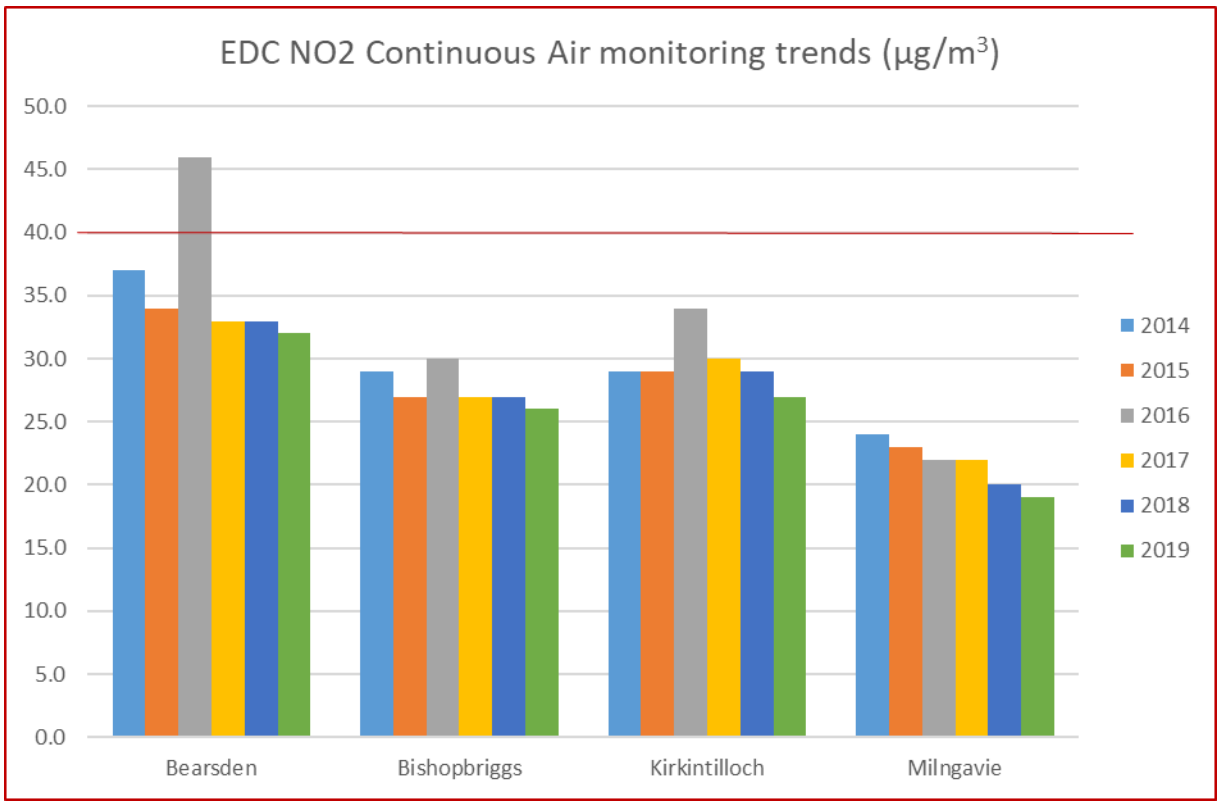

Figure 2 Trends in Annual Mean NO_2 Concentrations-Automatic Monitors

3.2.2 Particulate Matter (PM_{10})

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

The monitoring results show that neither the PM_{10} annual mean concentration level nor the daily mean concentration level was breached in 2019, and that the trend across East Dunbartonshire is either level or downwards.

3.2.3 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 5 years with the air quality objective of 10µg/m^3. East Dunbartonshire Council recorded no exceedance of the Scottish Air Quality Objective for $PM_{2.5}$. The annual average for 2019 at our Kirkintilloch site was 8µg/m^3 which is a slight increase from 2018 with an average of 6µg/m^3, however, we have only been monitoring $PM_{2.5}$ since March 2017. A full year of $PM_{2.5}$ data was obtained

for the first time at our Bishopbriggs and Bearsden sites with levels well below the Scottish Objective Level at 7 and 6 µg/m^3 respectively.

3.2.4 Sulphur Dioxide (SO_2)

East Dunbartonshire Council still does not monitor sulphur dioxide.

3.2.5 Carbon Monoxide, Lead and 1,3-Butadiene

East Dunbartonshire Council does not monitor for carbon monoxide, lead or 1,3-Butadiene

4. New Local Developments

Proposed new local developments in East Dunbartonshire which may affect air quality are still subject to obtaining planning permission therefore have been detailed under Planning Applications. Several applications required air quality assessments and are under consideration and these have also been detailed under Planning Applications.

4.1 Road Traffic Sources

East Dunbartonshire Council Roads were consulted on changes to traffic flows on roads within the area in 2019 and the following information is reported:

- Narrow congested streets with residential properties close to the kerb – no new roads that meet this criteria
- Busy streets where people may spend one hour or closer to traffic – no new roads that meet this criteria
- Roads with a high flow of buses and/or HGVs – no new roads that meet this criteria
- New roads constructed or proposed – no new roads that meet this criteria
- Roads with significantly changed traffic flow – four phases out of five of the Bishopbriggs Relief Road have now been constructed. This is a measure in the Bishopbriggs Air Quality Action Plan and a bid submitted in 2019 to obtain funding under City Deal has been successful. The funding will help towards the cost of constructing BRR 5. Air quality concerns have been raised in the Wester Cleddens area of Bishopbriggs as a result of the opening of BRR 4 and a Detailed Assessment was undertaken during 2019 to investigate further. The findings of the detailed assessment have not yet been fully reported on and will be submitted once the assessment is complete.
- Bus or coach stations – no new bus or coach stations to report.

4.2 Other Transport Sources

East Dunbartonshire Council confirms that there are no other transport sources as prescribed in the criteria viz: airports; locations where diesel or steam trains are regularly stationary for periods of 15 minutes or more, with potential for relevant exposure within 15m; locations with many movements of diesel locomotives, and potential long-term relevant exposure within 30m or ports for shipping.

4.3 Industrial Sources

East Dunbartonshire Council confirms there are no new industrial sources as prescribed in the criteria viz: new or proposed installations for which an air quality assessment has been carried out or existing installations where emissions have increased substantially or new relevant exposure has been introduced or new or significantly changed installations with no previous air quality assessment; major fuel storage depots storing petrol; petrol stations or poultry farms

4.4 Commercial and Domestic Sources

Plans for several new developments with Combined Heat and Power Plant (CHP) have been received and are awaiting or have been granted planning permission. Details are contained in Section 5 Planning Applications.

4.5 New Developments with Fugitive or Uncontrolled Sources

East Dunbartonshire Council confirms that no new developments with Fugitive or Uncontrolled Sources were identified during 2019.

5. Planning Applications

East Dunbartonshire Council requests a full air quality impact assessment in line with our Planning Guidance and where we consider the application may affect air quality. All East Dunbartonshire Council projects requiring planning permission come with a full air quality impact assessment as standard.

Environmental Health is consulted on many planning applications and the following included requests for full air quality impact assessments:

1. TP/ED/19/0236 Brookwood Library, 166 Drymen Road, Bearsden. Two storey early years centre with associated car parking and access off Manse Road. The site is partially located within Bearsden AQMA.

   The Air Quality Impact Assessment concluded that the development is considered unlikely to have significant adverse effects on local air quality, and ambient air quality with the development in place is not expected to have significant adverse effects on future site users. The application includes combined heat and power plant. It is judged that, with appropriate construction phase mitigation, the proposed development complies with relevant national and local planning policies. Granted subject to condition

2. TP/ED/19/0186 Site To North Of Railway Line And Bounded By South Crosshill Road And Kirkintilloch Road South Crosshill Road Bishopbriggs East Dunbartonshire.

   Redevelopment of existing superstore and car park to create replacement store, car park, petrol filling station, access, landscaping and associated works.

   The air quality impact assessment concluded that the predicted impacts from exposure to NO_2 as a consequence of the proposed scheme are of negligible significance at all receptors considered within the study area in terms of the appropriate guidance. The predicted impacts from exposure to particles as PM_{10} and $PM_{2.5}$ are of negligible significance at all receptors considered within the study area in terms of the appropriate guidance – awaiting decision

3. TP/ED/19/0238 Land adjacent to Southbank Road, Kirkintilloch Proposed two storey early years centre with associated car parking and access off Southbank Road, Kirkintilloch.

   The air quality impact assessment concluded that the development is unlikely to have significant adverse effects on local air quality and ambient air quality with the development in place and is not expected to have significant adverse effects on future site users. The application includes combined heat and power plant – Granted subject to condition.

4. TP/ED/19/0239 St Joseph's School Hall, North Campbell Avenue, Milngavie Early Years Facility

   The air quality impact assessment concluded that the development is unlikely to have significant adverse effects on local and ambient air quality or on future site users. It further concluded that with appropriate construction phase mitigation, the proposed development complies with all appropriate guidance. The application includes combined heat and power plant – Granted subject to condition.

5. TP/ED/19/0067 Bearsden Golf Club Thorn Road Bearsden East Dunbartonshire G61 4BP Residential development, landscaping, access and associated works for 65 units.

   The air quality impact assessment concluded that the predicted impact on annual mean NO_2, PM_{10} and $PM_{2.5}$ concentrations as a result of operational phase exhaust emissions were predicted to be negligible at all 20 sensitive receptors across the site. The exposure screening assessment indicated that annual mean NO_2, PM_{10} and $PM_{2.5}$ concentrations were deemed to be below the AQOs therefore the location is considered suitable for use without mitigation– awaiting decision

6. TP/ED/19/0816 Site south of South Crosshill Road, Bishopbriggs Proposed residential development comprising 147 houses with associated car parking and access from South Crosshill Road, refuse and cycle storage and formation of additional car parking spaces to the rear of the existing library

The air quality impact assessment concluded that the predicted impact from exposure to NO_2, PM_{10} and $PM_{2.5}$ is of negligible significance at all sensitive receptors within the study area in terms of the appropriate guidance. The report also considered the combined impact of the proposed residential development and food store redevelopment (TP/ED/19/0186) and concluded the predicted impact to be slight adverse on NO_2 annual mean and negligible significance on PM_{10} and $PM_{2.5}$ annual mean however, the NO_2 annual mean level is predicted to comply with the AQOs – awaiting decision

7. Of the three outstanding planning applications in last year's report, two are still awaiting decision (TP/ED/17/0865 and TP/ED/18/0223) and TP/ED/18/0872 was refused planning permission. An appeal has been unsuccessful.

There were also approximately 25 planning applications concerning domestic property and which included the installation of wood burning stoves.

6. Conclusions and Proposed Actions

6.1 Conclusions from New Monitoring Data

Both automatic and passive monitoring for NO_2 carried out during 2019 has not revealed any exceedences of the annual mean Air Quality Objective at any of the monitoring locations within East Dunbartonshire. The various new additional monitoring locations have not identified any new exceedences of the objectives for annual mean NO_2. The overall trend indicates downwards, continuing the downward trend since 2016. The automatic monitors, with the exception of Bearsden Cross recorded annual mean NO_2 levels below 30 µg/m^3 for the third consecutive year. Similarly, no exceedences of the hourly mean were recorded for the third year in succession.

There was a slight increase in the annual mean PM_{10} level at the Milngavie site from 13µg/m^3 to 14µg/m^3 and at the Kirkintilloch site from 11µg/m^3 to 13µg/m^3 however, both are still well below the annual mean objective level.

Bishopbriggs and Bearsden recorded reductions in the annual mean PM_{10} concentration.

$PM_{2.5}$ monitoring commenced at the Bearsden and Bishopbriggs sites for the first time in January 2019. Recorded levels during 2019 indicate an annual mean of 6 µg/m^3 and 7 µg/m^3 respectively which is significantly below the 10 µg/m^3 annual mean Air Quality Objective level (Table A7). The annual average at the Kirkintilloch site was 8 µg/m^3, a rise from the previous year when it measured 6 µg/m^3 . See Appendix E

6.2 Conclusions relating to New Local Developments

New local developments in East Dunbartonshire are unlikely to introduce new exceedences of the relevant objectives. Although a number of applications for development have included air quality impact assessments, there is nothing to indicate that such development would introduce any new exceedences of any of the air quality objectives.

6.3 Proposed Actions

Monitoring data for 2019 has not identified any new exceedences of the objectives for any pollutant and all monitored areas of East Dunbartonshire are in compliance.

Several NO_2 tubes were added to the network in response to concerns raised by the public and all have indicated levels well within the parameters of compliance.

It has been our intention to re locate our Milngavie continuous monitor however, after several years of an unchanging annual mean PM_{10} concentration, this has increased slightly during 2019, although still well within the Scottish Objective Level. Dispersion modelling undertaken during 2019 also indicated a hotspot nearby therefore we intend to continue monitoring at this site.

The NO_2 diffusion tube network has been added to in response to complaints and anticipation of development however, all additional NO_2 tubes indicate there is no cause for concern. We intend to review the network and make a decision on which tubes can be removed as not all have been in place for one year.

It is our intention to revoke the Bearsden AQMA. Three consecutive years of data indicate NO_2 and PM_{10} annual mean levels are well below the objective levels and there are no exceedences across the NO_2 diffusion tube network in the Bearsden area.

It is not our intention to revoke the Bishopbriggs AQMA at this stage. One slight remaining hotspot on the Bishopbriggs NO_2 tube network is still within 10% of the AQO, although not exceeding. There are also extensive redevelopment plans in terms of City Deal (previously discussed) including construction of Phase 5 of the Bishopbriggs Relief Road. It is anticipated that during this period of extensive construction over several years, local air quality may be affected leading to unreliable data.

We will continue to implement Action Plan measures where funding allows.

The next Annual Progress Report will be submitted in 2021.

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 ?	Monitoring Technique	Distance to Relevant Exposure (m) (1)	Distance to kerb of nearest road (m) (2)	Inlet Height (m)
EDB1	Bishopbriggs	Roadside	260995	670130	NO2; PM10; PM2.5	Y	Chemiluminescent; FIDAS	5m	2m	2
EDB2	Bearsden	Kerbside	254269	672067	NO2; PM10; PM2.5	Y	Chemiluminescent; FIDAS	<2m	1m	2
EDB3	Kirkintilloch	Kerbside	265675	673516	NO2; PM10; PM2.5	N	Chemiluminescent; FIDAS	<2m	1m	3
EDB4	Milngavie	Roadside	255328	674115	NO2; PM10	N	Chemiluminescent; TEOM FDMS	<40m	1m	3

(1) 0 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?	Distance to Relevant Exposure (m) (1)	Distance to kerb of nearest road (m) (2)	Tube collocated with a Continuous Analyser?
EDB5	Bearsden 1 (118 Drymen Rd)	Roadside	254218	672193	NO2	Y	3m	2m	N
EDB11	Bearsden 10	Roadside	255394	670683	NO2	N	24m	2m	N
EDB12	Bearsden 13	Roadside	254809	671057	NO2	Y	26m	2m	N
EDB13	Bearsden 14	Roadside	254877	671000	NO2	Y	8m	2m	N
EDB14	Bearsden 15	Roadside	254898	671023	NO2	Y	2m	2m	N
EDB15	Bearsden 16	Roadside	254269	672067	NO2	Y	2m	1m	Y
EDB16	Bearsden 16 B	Roadside	254269	672067	NO2	Y	2m	1m	Y
EDB17	Bearsden 16 C	Roadside	254269	672067	NO2	Y	2m	1m	Y
EDB18	Bearsden 17	Roadside	254258	672077	NO2	Y	<2m	2m	N
EDB19	Bearsden 18	Roadside	254275	672069	NO2	Y	<2m	2m	N
EDB51	Bearsden 19	Roadside	255403	673236	NO2	Y	5m	<2m	N
EDB52	Bearsden 20	Roadside	255400	673134	NO2	Y	28m	<2m	N
EDB53	Bearsden 21	Roadside	254984	671910	NO2	Y	32m	<2m	N
EDB72	Bearsden 22	Roadside	253738	673041	NO2	N	3m	1m	N
EDB6	Bearsden 3 (5 Ravelston Rd)	Roadside	254655	670158	NO2	N	8m	5m	N
EDB7	Bearsden 4 (8 Lowther Ave)	Roadside	253075	673382	NO2	N	6m	5m	N
EDB8	Bearsden 7	Roadside	254269	672069	NO2	Y	<2m	2m	N
EDB9	Bearsden 8	Roadside	254275	672047	NO2	Y	18m	2m	N
EDB10	Bearsden 9	Roadside	254751	670621	NO2	N	30m	2m	N
EDB21	Bishopbriggs 13	Roadside	260549	669312	NO2	Y	5m	2m	N
EDB22	Bishopbriggs 14	Roadside	260995	670130	NO2	Y	42m	2m	Y

East Dunbartonshire Council

Site ID	Site Name	Site Type	X OS Grid Ref	Y OS Grid Ref	Pollutants Monitored	In AQMA?	Distance to Relevant Exposure (m) (1)	Distance to kerb of nearest road (m) (2)	Tube collocated with a Continuous Analyser?
EDB23	Bishopbriggs 14B	Roadside	260995	670130	NO2	Y	42m	2m	Y
EDB24	Bishopbriggs 14C	Roadside	260995	670130	NO2	Y	42m	2m	Y
EDB25	Bishopbriggs 16	Roadside	260580	669533	NO2	Y	<2m	2m	N
EDB26	Bishopbriggs 17	Roadside	260552	669320	NO2	Y	<2m	2m	N
EDB53	Bishopbriggs 21	Roadside	261033	669650	NO2	Y	6m	2m	N
EDB54	Bishopbriggs 22	Roadside	260571	669339	NO2	Y	5m	2m	N
EDB55	Bishopbriggs 23	Roadside	260759	669999	NO2	Y	5m	2m	N
EDB56	Bishopbriggs 24	Roadside	261903	671955	NO2	Y	10m	2m	N
EDB57	Bishopbriggs 25	Roadside	260617	670338	NO2	Y	6m	2m	N
EDB31	Bishopbriggs 6	Roadside	261016	670198	NO2	Y	<2m	2m	N
EDB64	Bishopbriggs 26	Roadside	262112	670517	NO2	N	3m	1m	N
EDB65	Bishopbriggs 27	Roadside	262305	670649	NO2	N	3m	1m	N
EDB66	Bishopbriggs 28	Roadside	262488	670630	NO2	N	3m	1m	N
EDB67	Bishopbriggs 29	Roadside	262741	670245	NO2	N	3m	1m	N
EDB68	Bishopbriggs 30	Roadside	262398	669436	NO2	N	3m	1m	N
EDB69	Bishopbriggs 31	Roadside	262953	670564	NO2	N	3m	1m	N
EDB32	Kirkintilloch 15	Roadside	265641	673497	NO2	N	2m	2m	N
EDB33	Kirkintilloch 16	Roadside	265697	673524	NO2	N	3m	2m	N
EDB34	Kirkintilloch 17	Roadside	265675	673516	NO2	N	3m	1m	Y
EDB35	Kirkintilloch 17 B	Roadside	265675	673516	NO2	N	3m	1m	Y
EDB36	Kirkintilloch 17 C	Roadside	265675	673516	NO2	N	3m	1m	Y
EDB37	Kirkintilloch 18	Roadside	265674	673521	NO2	N	<2m	2m	N
EDB47	Kirkintilloch 19	Roadside	265602	673583	NO2	N	<2m	<2m	N

East Dunbartonshire Council

Site ID	Site Name	Site Type	X OS Grid Ref	Y OS Grid Ref	Pollutants Monitored	In AQMA?	Distance to Relevant Exposure (m) (1)	Distance to kerb of nearest road (m) (2)	Tube collocated with a Continuous Analyser?
EDB48	Kirkintilloch 20	Roadside	265849	673424	NO2	N	6m	<2m	N
EDB49	Kirkintilloch 21	Roadside	265506	671961	NO2	N	5m	<2m	N
EDB50	Kirkintilloch 22	Roadside	265657	671678	NO2	N	5m	<2m	N
EDB44	Milngavie 10	Roadside	255329	674114	NO2	N	40m	1m	Y
EDB45	Milngavie 10 B	Roadside	255329	674114	NO2	N	40m	1m	Y
EDB46	Milngavie 10 C	Roadside	255329	674114	NO2	N	40m	1m	Y
EDB38	Milngavie 4	Roadside	255728	674486	NO2	N	5m	2m	N
EDB41	Milngavie 7	Roadside	255279	674124	NO2	N	<2m	9m	N
EDB43	Milngavie 9	Roadside	255331	674214	NO2	N	7m	2m	N
EDB70	Milngavie 11	Roadside	254331	674120	NO2	N	3m	1m	N
EDB71	Milngavie 12	Roadside	254041	673490	NO2	N	3m	1m	N
EDB73	Milngavie 13	Roadside	255183	674409	NO2	N	3m	1m	N

(1) N/A if not applicable.

Table A.3 – Annual Mean NO_2 Monitoring Results

Site ID	Site Type	Monitoring Type	Valid Data Capture for Monitoring Period (%) (1)	Valid Data Capture 2019 (%) (2)	NO_2 Annual Mean Concentration ($\mu g/m^3$) (3)				
					2015	2016	2017	2018	2019
Bearsden	Kerbside	Automatic	99%	99%	34	46	33	33	32
Bishopbriggs	Roadside	Automatic	99%	99%	27	30	27	27	26
Kirkintilloch	Kerbside	Automatic	99%	99%	29	34	30	29	27
Milngavie	Roadside	Automatic	92%	92%	23	22	22	20	19
Bearsden 1 (118 Drymen Rd)	Roadside	Diffusion Tubes	100%	100%	32.87	29.1	24.72	26.8	25.0
Bearsden 10	Roadside	Diffusion Tubes	100%	100%	26.07	26.2	26.34	24.2	24.1
Bearsden 13	Roadside	Diffusion Tubes	100%	100%	31.97	33.2	33.16	28.0	29.2
Bearsden 14	Roadside	Diffusion Tubes	100%	100%	32.91	34.8	31.36	28.1	27.6
Bearsden 15	Roadside	Diffusion Tubes	100%	100%	33.9	31.9	34.27	30.1	28.8
Bearsden 16	Roadside	Diffusion Tubes	100%	100%	33.58	35.03	33.2	29.0	31.7
Bearsden 16 B	Roadside	Diffusion Tubes	92%	92%	34.43	34.53	37.12	32.5	31.6
Bearsden 16 C	Roadside	Diffusion Tubes	100%	100%	34.77	35.92	34.43	30.8	30.4
Bearsden 17	Roadside	Diffusion Tubes	92%	92%	28.79	34.76	32.13	31.1	31.2
Bearsden 18	Roadside	Diffusion Tubes	100%	100%	31.69	31.27	30.2	26.8	27.6
Bearsden 19	Roadside	Diffusion	100%	100%	#N/A	#N/A	#N/A	16.4	18.5

Site ID	Site Type	Monitoring Type	Valid Data Capture for Monitoring Period (%) (1)	Valid Data Capture 2019 (%) (2)	NO_2 Annual Mean Concentration ($\mu g/m^3$) (3)				
					2015	2016	2017	2018	2019
		Tubes							
Bearsden 20	Roadside	Diffusion Tubes	100%	100%	#N/A	#N/A	#N/A	14.5	17.3
Bearsden 21	Roadside	Diffusion Tubes	100%	100%	#N/A	#N/A	#N/A	16.4	18.0
Bearsden 22	Roadside	Diffusion Tubes	92%	92%	#N/A	#N/A	#N/A	#N/A	15.5
Bearsden 3 (5 Ravelston Rd)	Roadside	Diffusion Tubes	92%	92%	22.8	18.41	17.88	17.0	17.4
Bearsden 4 (8 Lowther Ave)	Urban Background	Diffusion Tubes	92%	92%	11.95	11.76	10.13	13.3	15.3
Bearsden 7	Roadside	Diffusion Tubes	100%	100%	28.84	35.33	31.3	24.9	30.1
Bearsden 8	Roadside	Diffusion Tubes	100%	100%	33.54	32.8	32.34	27.0	27.4
Bearsden 9	Roadside	Diffusion Tubes	100%	100%	30.57	26.07	25.85	21.3	23.4
Bishopbriggs 13	Roadside	Diffusion Tubes	100%	100%	35.99	38.13	34.07	34.7	31.5
Bishopbriggs 14	Roadside	Diffusion Tubes	100%	100%	30.92	31.78	25.47	24.1	22.0
Bishopbriggs 14 B	Roadside	Diffusion Tubes	100%	100%	30.04	29	24.56	23.3	21.5
Bishopbriggs 14 C	Roadside	Diffusion Tubes	100%	100%	28.88	26.66	25.59	22.8	21.8
Bishopbriggs 16	Roadside	Diffusion Tubes	100%	100%	24.96	26.98	24.72	24.8	22.1

East Dunbartonshire Council

Site ID	Site Type	Monitoring Type	Valid Data Capture for Monitoring Period (%) [1]	Valid Data Capture 2019 (%) [2]	NO_2 Annual Mean Concentration ($\mu g/m^3$) [3]				
					2015	2016	2017	2018	2019
Bishopbriggs 17	Roadside	Diffusion Tubes	100%	100%	27.08	31.02	29.01	27.6	24.9
Bishopbriggs 21	Roadside	Diffusion Tubes	92%	92%	#N/A	#N/A	18.91	19.7	14.9
Bishopbriggs 22	Roadside	Diffusion Tubes	100%	100%	#N/A	#N/A	33.16	32.7	29.0
Bishopbriggs 23	Roadside	Diffusion Tubes	92%	92%	#N/A	#N/A	32.29	23.0	27.0
Bishopbriggs 24	Roadside	Diffusion Tubes	100%	100%	#N/A	#N/A	21.21	22.8	24.9
Bishopbriggs 25	Roadside	Diffusion Tubes	92%	92%	#N/A	#N/A	14.78	15.6	15.4
Bishopbriggs 26	Roadside	Diffusion Tubes	92%	92%	#N/A	#N/A	#N/A	#N/A	17.2
Bishopbriggs 27	Roadside	Diffusion Tubes	92%	92%	#N/A	#N/A	#N/A	#N/A	14.8
Bishopbriggs 28	Roadside	Diffusion Tubes	92%	92%	#N/A	#N/A	#N/A	#N/A	14.0
Bishopbriggs 29	Roadside	Diffusion Tubes	92%	92%	#N/A	#N/A	#N/A	#N/A	15.2
Bishopbriggs 30	Roadside	Diffusion Tubes	92%	92%	#N/A	#N/A	#N/A	#N/A	22.5
Bishopbriggs 31	Roadside	Diffusion Tubes	83%	83%	#N/A	#N/A	#N/A	#N/A	15.1
Bishopbriggs 6	Roadside	Diffusion Tubes	75%	75%	28.11	34.35	28.77	24.9	24.1
Kirkintilloch 15	Roadside	Diffusion	100%	100%	34.96	27.36	25.73	25.3	24.4

Site ID	Site Type	Monitoring Type	Valid Data Capture for Monitoring Period (%) (1)	Valid Data Capture 2019 (%) (2)	NO_2 Annual Mean Concentration ($\mu g/m^3$) (3)				
					2015	2016	2017	2018	2019
		Tubes							
Kirkintilloch 16	Roadside	Diffusion Tubes	92%	92%	29.93	29.15	32.41	28.4	27.6
Kirkintilloch 17	Roadside	Diffusion Tubes	100%	100%	32.8	33.16	30.86	26.7	28.1
Kirkintilloch 17 B	Roadside	Diffusion Tubes	100%	100%	32.85	32.23	28.44	24.1	27.7
Kirkintilloch 17 C	Roadside	Diffusion Tubes	100%	100%	28.53	31.91	28.09	26.3	27.5
Kirkintilloch 18	Roadside	Diffusion Tubes	100%	100%	25.45	27.15	25.07	22.5	23.4
Kirkintilloch 19	Roadside	Diffusion Tubes	100%	100%	#N/A	#N/A	15.96	17.4	18.2
Kirkintilloch 20	Roadside	Diffusion Tubes	100%	100%	#N/A	#N/A	30.09	27.5	24.8
Kirkintilloch 21	Roadside	Diffusion Tubes	100%	100%	#N/A	#N/A	22.44	18.8	18.2
Kirkintilloch 22	Roadside	Diffusion Tubes	100%	100%	#N/A	#N/A	19.09	18.1	16.8
Milngavie 10	Roadside	Diffusion Tubes	92%	92%	24.89	22.98	20.52	22.9	20.5
Milngavie 10 B	Roadside	Diffusion Tubes	100%	100%	21.94	24.44	20.1	19.5	20.0
Milngavie 10 C	Roadside	Diffusion Tubes	92%	92%	22.42	23.33	20.28	19.5	19.9
Milngavie 11	Roadside	Diffusion Tubes	83%	83%	#N/A	#N/A	#N/A	#N/A	9.4

East Dunbartonshire Council

Site ID	Site Type	Monitoring Type	Valid Data Capture for Monitoring Period (%) (1)	Valid Data Capture 2019 (%) (2)	NO_2 Annual Mean Concentration ($\mu g/m^3$) (3)				
					2015	2016	2017	2018	2019
Milngavie 12	Roadside	Diffusion Tubes	83%	83%	#N/A	#N/A	#N/A	#N/A	11.8
Milngavie 13	Roadside	Diffusion Tubes	67%	67%	#N/A	#N/A	#N/A	#N/A	18.4
Milngavie 4	Roadside	Diffusion Tubes	100%	100%	26.4	26.26	23.95	20.3	21.7
Milngavie 7	Roadside	Diffusion Tubes	100%	100%	31.21	30.32	29.61	26.5	24.5
Milngavie 9	Urban Background	Diffusion Tubes	100%	100%	28.4	27.03	26.18	25.2	22.0

Notes: Exceedances of the NO_2 annual mean objective of $40\mu g/m^3$ are shown in **bold**.

NO_2 annual means exceeding $60\mu g/m^3$, indicating a potential exceedance of the NO_2 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%. See Appendix C for details.

Table A.4 – 1-Hour Mean NO_2 Monitoring Results

Site ID	Site Type	Monitoring Type	Valid Data Capture for Monitoring Period (%) (1)	Valid Data Capture 2019 (%) (2)	NO_2 1-Hour Means > 200µg/m^3 (3)				
					2015	2016	2017	2018	2019
EDB2-Bearsden	Kerbside	Automatic	98	98	5	19	0	0	0
EDB1-Bishopbriggs	Roadside	Automatic	99	99	0	0	0	0 (99)	0
EDB3-Kirkintilloch	Kerbside	Automatic	99	99	0	0	0	0	0
EDB4-Milngavie	Roadside	Automatic	95	95	1	0	0	0 (105)	0

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

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

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

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

Table A.5 – Annual Mean PM_{10} Monitoring Results

Site ID	Site Type	Valid Data Capture for Monitoring Period (%) (1)	Valid Data Capture 2019 (%) (2)	PM_{10} Annual Mean Concentration (µg/m^3) (3)				
				2015	2016	2017	2018	2019
Bearsden	Kerbside	97	97	14	14	13	14	11
Bishopbriggs	Roadside	94	94	15	15	16	17	12
Kirkintilloch	Kerbside	88	88	17	16	12	11	13
Milngavie	Roadside	95	95	13	13	13	13	14

Notes: Exceedances of the PM_{10} annual mean objective of 18µg/m^3 are shown in **bold.**

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

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

(3) 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.

Table A.6 – 24-Hour Mean PM_{10} Monitoring Results

Site ID	Site Type	Valid Data Capture for Monitoring Period (%) (1)	Valid Data Capture 2019 (%) (2)	PM_{10} 24-Hour Means > 50µg/m^3 (3)				
				2015	2016	2017	2018	2019
Bearsden	Kerbside	97	97	0	0	0	0	2
Bishopbriggs	Roadside	94	94	1(23)	0	2	7	2
Kirkintilloch	Kerbside	88	88	4	0	0	0	3
Milngavie	Roadside	95	95	0	0	1	0	2

Notes: Exceedances of the PM_{10} 24-hour mean objective (50µg/m^3 not to be exceeded more than 7 times/year) are shown in **bold.**

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

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

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

Table A.7 – Annual Mean $PM_{2.5}$ Monitoring Results

Site ID	Site Type	Valid Data Capture for Monitoring Period (%) (1)	Valid Data Capture 2019 (%) (2)	$PM_{2.5}$ Annual Mean Concentration (µg/m^3) (3)				
				2015	2016	2017	2018	2019
Kirkintilloch	Roadside	88	88	N/A	N/A	6	6	8
Bishopbriggs	Roadside	89	89	N/A	N/A	N/A	N/A	7
Bearsden	Roadside	92	92	N/A	N/A	N/A	N/A	6

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

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

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

(3) 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.

Appendix B: Full Monthly Diffusion Tube Results for 2019

Table B.1 – NO_2 Monthly Diffusion Tube Results for 2019

Site ID	NO_2 Mean Concentrations ($\mu g/m^3$)													
	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Annual Mean	
													Raw Data	Bias Adjusted (1) (Bias Factor 0.85)
Bearsden 1 (118 Drymen Rd)	***48.3***	***41.5***	30.9	25.1	23.0	18.7	18.6	21.4	25.3	26.7	***40.1***	32.9	29.4	25.0
Bearsden 10	***49.2***	***40.4***	27.2	25.7	21.5	19.3	8.2	21.1	19.5	29.9	***40.3***	37.7	28.3	24.1
Bearsden 13	***52.8***	***46.8***	34.2	35.3	27.5	24.8	20.9	27.8	26.1	34.2	***45.3***	36.8	34.4	29.2
Bearsden 14	***55.8***	***42.9***	30.6	28.9	28.2	24.1	25.4	23.5	30.7	30.9	***42.4***	26.7	32.5	27.6
Bearsden 15	***54.8***	***50.2***	30.6	29.9	27.0	22.3	24.5	27.0	26.0	34.5	***50.0***	30.1	33.9	28.8
Bearsden 16	***60.3***	***43.2***	36.8	31.7	36.0	28.3	27.9	33.6	30.0	31.7	***53.3***	34.7	37.3	31.7
Bearsden 16 B	***59.8***	39.4	31.0	38.7	34.5	29.1		32.9	31.5	34.2	***50.9***	26.4	37.1	31.6
Bearsden 16 C	***56.6***	***43.0***	30.8	28.7	32.7	30.6	25.8	33.0	33.0	37.2	***45.9***	31.3	35.7	30.4
Bearsden 17	***48.9***	39.2	29.6	***47.1***	34.5		28.5	28.6	28.9	37.4	***49.6***	31.9	36.7	31.2
Bearsden 18	***46.3***	38.1	28.8	36.7	31.5	22.3	19.5	24.5	26.6	35.3	***49.6***	29.8	32.4	27.6
Bearsden 19	39.4	31.1	18.5	18.6	15.5	9.3	13.2	13.9	17.7	20.1	37.3	26.5	21.8	18.5
Bearsden 20	***41.3***	30.9	19.1	14.0	13.3	10.6	9.4	10.6	15.1	21.2	31.3	27.4	20.4	17.3
Bearsden 21	***40.2***	31.5	15.0	23.7	12.9	13.3	10.2	10.6	14.1	17.5	38.3	26.2	21.1	18.0
Bearsden 22		34.9	18.6	23.5	12.5	6.5	8.3	12.4	16.1	18.9	33.3	15.8	18.3	15.5
Bearsden 3 (5 Ravelston Rd)	38.1	28.1	15.5	19.2	11.7		10.4	10.1	15.7	20.5	35.7	19.6	20.4	17.4
Bearsden 4 (8 Lowther Ave)	11.9	17.5	8.6	10.2	5.5		6.7	7.1	6.9	11.4	***100.0***	12.1	18.0	15.3
Bearsden 7	***58.1***	39.5	34.6	32.4	32.6	22.9	25.5	30.6	30.8	37.3	***47.5***	32.5	35.4	30.1
Bearsden 8	***58.5***	***42.1***	39.6	24.8	30.0	23.9	21.3	26.7	21.9	30.8	***40.7***	27.2	32.3	27.4

East Dunbartonshire Council

Site ID	NO_2 Mean Concentrations (µg/m^3)													
	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Annual Mean	
													Raw Data	Bias Adjusted (1) (Bias Factor 0.85)
Bearsden 9	***51.3***	39.3	28.6	22.2	20.5	16.4	15.3	20.1	21.4	26.9	38.0	29.8	27.5	23.4
Bishopbriggs 13	***46.6***	***46.5***	38.2	***42.4***	32.7	28.5	26.4	24.5	29.2	38.4	***55.3***	35.4	37.0	31.5
Bishopbriggs 14	***42.9***	30.9	23.7	26.2	19.9	18.8	16.6	20.0	19.5	27.0	38.0	27.2	25.9	22.0
Bishopbriggs 14 B	***43.0***	39.5	22.0	23.0	20.5	15.4	16.6	19.5	22.3	19.9	35.6	26.2	25.3	21.5
Bishopbriggs 14 C	39.1	36.4	24.2	22.9	21.6	18.5	15.4	19.7	18.7	27.9	38.9	24.8	25.7	21.8
Bishopbriggs 16	***43.2***	36.5	20.1	26.0	20.7	17.2	14.2	16.5	17.4	29.4	***49.6***	20.7	26.0	22.1
Bishopbriggs 17	***44.7***	38.1	29.2	29.1	27.4	18.7	19.5	24.1	26.5	27.7	***44.5***	22.0	29.3	24.9
Bishopbriggs 21	37.4	27.6	14.8	16.5	10.8	8.8	10.4	11.3	15.5	21.0		19.3	17.6	14.9
Bishopbriggs 22	***51.3***	***45.0***	32.8	32.1	28.8	27.4	25.1	29.8	27.6	35.9	***47.6***	26.4	34.2	29.0
Bishopbriggs 23	***54.7***	39.9	28.4	31.9	23.7	20.0	19.7	21.8		31.3	***51.1***	26.3	31.7	27.0
Bishopbriggs 24	***44.8***	***40.1***	16.6	35.2	21.6	19.6	***43.4***	16.2	21.7	29.8	39.7	23.2	29.3	24.9
Bishopbriggs 25	36.2	28.0	10.2	18.2	6.3		10.2	11.7	12.4	17.9	32.4	15.4	18.1	15.4
Bishopbriggs 26		31.0	16.6	21.0	17.6	16.8	9.6	10.6	19.1	20.4	35.8	23.7	20.2	17.2
Bishopbriggs 27		23.7	12.7	21.7	14.2	12.7	6.5	12.0	13.9	19.7	33.6	20.6	17.4	14.8
Bishopbriggs 28		28.6	13.7	17.3	10.3	9.6	8.2	8.8	14.7	17.2	33.3	18.9	16.4	14.0
Bishopbriggs 29		***42.0***	26.6	13.5	7.8	8.8	7.2	7.4	15.3	16.9	28.6	22.4	17.9	15.2
Bishopbriggs 30		31.4	16.7	30.1	24.9	22.2	19.9	21.1	24.2	31.3	36.5	32.8	26.5	22.5
Bishopbriggs 31		16.5	8.6	24.5	14.2	14.6		14.3	17.1	21.8	22.1	24.0	17.8	15.1
Bishopbriggs 6	***47.9***	34.2	29.1	18.3	23.2	20.1	18.1			27.1	37.6		28.4	24.1
Kirkintilloch 15	***50.0***	28.6	25.7	31.5	22.3	22.8	19.4	19.7	22.2	29.7	39.1	33.5	28.7	24.4
Kirkintilloch 16	***47.6***	36.9	33.5	33.9	27.9	21.8		23.4	20.7	32.9	***46.0***	32.1	32.4	27.6
Kirkintilloch 17	***55.1***	***47.1***	32.0	29.2	23.4	23.8	19.5	25.5	26.5	35.0	***46.0***	33.7	33.1	28.1
Kirkintilloch 17 B	***53.9***	***48.7***	29.3	31.6	28.5	24.7	20.8	25.5	23.1	32.4	***43.6***	29.4	32.6	27.7
Kirkintilloch 17 C	***54.0***	39.5	32.7	26.1	26.6	22.6	22.2	25.5	26.1	35.0	***45.1***	32.5	32.3	27.5
Kirkintilloch 18	***45.3***	***69.2***	22.0	23.7	20.2	20.0	13.5	21.0	18.9	22.9	35.8	17.5	27.5	23.4

East Dunbartonshire Council

Site ID	NO_2 Mean Concentrations ($\mu g/m^3$)													
	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Annual Mean	
													Raw Data	Bias Adjusted (1) (Bias Factor 0.85)
Kirkintilloch 19	38.1	***46.7***	11.7	24.4	14.6	14.7	6.2	14.1	13.5	16.4	33.8	22.1	21.4	18.2
Kirkintilloch 20	***49.6***	***46.1***	23.4	31.5	28.0	26.2	19.9	20.2	27.4	28.0	***40.9***	9.4	29.2	24.8
Kirkintilloch 21	***44.3***	29.4	19.6	19.8	14.3	14.7	11.7	9.9	13.1	20.6	36.3	22.6	21.4	18.2
Kirkintilloch 22	38.6	28.2	14.5	15.5	11.4	10.3	11.0	11.4	17.2	20.5	34.4	24.2	19.8	16.8
Milngavie 10	***40.9***	27.7	19.8	23.6	32.1	14.5	14.8		17.1	24.3	33.8	17.1	24.2	20.5
Milngavie 10 B	***44.4***	28.3	24.6	25.1	18.3	15.4	11.7	13.9	17.2	22.7	35.6	25.3	23.5	20.0
Milngavie 10 C	***46.0***	29.7	23.0		18.6	15.4	13.7	14.5	19.2	25.0	36.3	16.6	23.5	19.9
Milngavie 11		18.4		11.9	5.9	7.3	6.1	5.1	8.1	12.4	21.1	14.6	11.1	9.4
Milngavie 12		29.7	15.7	11.7	6.1	6.1		5.5	9.0	9.6	28.8	16.1	13.8	11.8
Milngavie 13				25.9	16.4	12.1		8.4	12.8	18.3	***48.9***	25.4	21.0	18.4*
Milngavie 4	***43.7***	34.6	22.5	20.1	20.0	19.8	14.4	20.1	20.2	26.4	37.8	27.4	25.6	21.7
Milngavie 7	***47.8***	39.2	28.3	25.0	27.1	13.9	22.1	25.2	24.9	28.8	33.8	29.5	28.8	24.5
Milngavie 9	***42.6***	31.8	23.9	23.2	21.6	18.8	16.0	20.8	20.2	27.3	36.8	26.9	25.8	22.0

(1) See Appendix C for details on bias adjustment

(2) * Data annualised

As described in the Technical Guidance LAQM-TG-16 if there is more than one collocation study then the A factors should not be averaged but an approximation should be derived by averaging the B values. For example if there are two studies of 22% and 28% the average would be 25%. This is expressed as a factor, eg 0.25, then 1 is added to this, 0.25+1.00 = 1.25. Finally take the inverse to give the bias adjustment factor 1/1.25=0.80. We had 2 B values of 23% and 13%. Average = 18% = 0.18+1=1.18. Inverse of this is 1/1.18 = 0.85. Therefore we have a Bias adjustment factor of 0.85.

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

QA/QC of diffusion tube monitoring

Diffusion tube monitoring is carried out in accordance with the procedures contained in the guidance 'Diffusion Tubes for Ambient NO_2 Monitoring: Practical Guidance for Laboratories and Users' and LAQM.TG 16. All tubes are prepared using the 20% TEA in water preparation method and are supplied by Glasgow Scientific Services (GSS) Laboratory which is UKAS accredited for the analysis of Diffusion tubes. All results have been bias adjusted and annualised where required.

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

Glasgow Scientific Services (GSS) Laboratory also participates in the independent AIR-PT scheme for NO_2 tubes analysis and GSS has performed to the following proficiency levels during the AIR-PT testing scheme in 2019:

January-February – 100%

April-May – 100%

July-August – 100%

September-November – 50%

The testing scheme is in place to evaluate the performance of the laboratory and the diffusion tubes in distribution. The percentage displays a "snap-shot" of the analytical quality. For the last five round window GSS had a combined score of 90% which was subsequently determined to be satisfactory based on the z-score system. However, if five rolling rounds average significantly lower than 95%, it indicates issues with bias, hence we have concluded that GSS laboratory may have significant systemic sources of bias in their assay.

Diffusion Tube Bias Adjustment Factors

The bias adjustment value of 0.85 has been used to adjust NO_2 tube data. The bias was the outcome of co-located diffusion tubes results of Bearsden Cross, Bishopbriggs Crowhill Road, Park Road in Milngavie and Townhead in Kirkintilloch. The suggested bias value of 0.86 from the National Diffusion Tube Bias Adjustment Factor spreadsheet version 03/20 shows the similarity of the analytical precision

nationwide. The local bias adjustment value has been used, as it is more applicable to the East Dunbartonshire Council area. EDC has shared its co-location data with the National Physics Laboratory and the information is available at https://laqm.defra.gov.uk/bias-adjustment-factors/co-location-data.html

Where passive diffusion tubes have less than 75% data capture for the annual period, an annualisation calculation is undertaken. See table below for details. Note; annual mean concentrations from the automatic sites varies as timings/dates are coordinated to the relevant passive diffusion tube exposure dates.

Site ID Milngavie 13					
Measured Mean Value (M) = 21.03					
Site	**Site Type**	**Annual Mean (AM) µg/m3**	**Annual Mean (PM) µg/m3**	**Ratio AM/PM**	**Average Ratio (R)**
Glasgow Townhead	Urban background	21.03	22.50	0.93	1.03
Milngavie	Roadside	19.92	18.25	1.09	
St Leonards	Urban background	20.5	19.13	1.07	
Adjusted Means (M x R) =21.71					

Table 5 Annualisation Calculation

National Diffusion Tube Bias Adjustment Factor Spreadsheet — Spreadsheet Version Number: 03/20

Follow the steps below in the correct order to show the results of relevant co-location studies
Data only apply to tubes exposed monthly and are not suitable for correcting individual short-term monitoring periods
Whenever presenting adjusted data, you should state the adjustment factor used and the version of the spreadsheet
This spreadhseet will be updated every few months: the factors may therefore be subject to change. This should not discourage their immediate use.

This spreadsheet will be updated at the end of June 2020
LAQM Helpdesk Website

The LAQM Helpdesk is operated on behalf of Defra and the Devolved Administrations by Bureau Veritas, in conjunction with contract partners AECOM and the National Physical Laboratory.

Spreadsheet maintained by the National Physical Laboratory. Original compiled by Air Quality Consultants Ltd.

Step 1: Select the Laboratory that Analyses Your Tubes from the Drop-Down List

If a laboratory is not shown, we have no data for this laboratory.

Step 2: Select a Preparation Method from the Drop-Down List

If a preparation method is not shown, we have no data for this method at this laboratory.

Step 3: Select a Year from the Drop-Down List

If a year is not shown, we have no data

Step 4: Where there is only one study for a chosen combination, you should use the adjustment factor shown with caution. Where there is more than one study, use the overall factor shown in blue at the foot of the final column.

If you have your own co-location study then see footnote. If uncertain what to do then contact the Local Air Quality Management Helpdesk at LAQMHelpdesk@uk.bureauveritas.com or 0800 0327953

	Analysed By	Method	Year	Site Type	Local Authority	Length of Study (months)	Diffusion Tube Mean Conc. (Dm) (µg/m³)	Automatic Monitor Mean Conc. (Cm)	Bias (B)	Tube Precision	Bias Adjustment Factor (A) (Cm/Dm)
2573	Glasgow Scientific Services	20% TEA in water	2019	R	East Dunbartonshire Council	12	36	32	12.7%	P	0.89
2574	Glasgow Scientific Services	20% TEA in water	2019	R	East Dunbartonshire Council	12	23	21	10.6%	P	0.90
2575	Glasgow Scientific Services	20% TEA in water	2019	R	East Dunbartonshire Council	12	33	26	23.7%	G	0.81
2600	Edinburgh Scientific Services	50% TEA in acetone	2019	KS	Marylebone Road Intercomparison	12	75	65	15.4%	P	0.87
2601	Glasgow Scientific Services	20% TEA in water	2019	KS	Marylebone Road Intercomparison	12	79	65	21.0%	G	0.83
2605	Aberdeen Scientific Services	20% TEA in water	2019	KS	Marylebone Road Intercomparison	12	77	65	18.3%	G	0.85
2980	Aberdeen Scientific Services	20% TEA in water	2019		Overall Factor (6 studies)				Use		0.81
2981	Edinburgh Scientific Services	50% TEA in acetone	2019		Overall Factor (1 study)				Use		0.87
2982	Glasgow Scientific Services	20% TEA in water	2019		Overall Factor (4 studies)				Use		0.86

Table 6 National Diffusion Tube Bias Adjustment Factor Spreadsheet

QA/QC of Automatic Monitoring

All automatic air quality monitoring equipment is subject to the QA/QC procedure recommended in LAQM.TG16, and is serviced, recalibrated and audited every six months by the equipment supplier (ESU) and Ricardo-AEA on behalf of Scottish Government. The service contracts include call outs to site for repairs and the routine replacement of consumables. A combination of Horiba APNA 370 and Model 42i Thermo instruments are used to monitor oxides of nitrogen (NO_x) to establish NO_2 concentrations in the network together with TEOM FDMS to monitor PM_{10} particles and FIDAS to measure PM_{10} and $PM_{2.5}$. All stations are air-conditioned.

All sites are part of the Scottish Government data reporting process and subject to independent audit annually with data validation and ratification performed by Ricardo-AEA. Data ratification is undertaken by Ricardo as part of the QA/QC process on behalf of the Scottish Government, data ratification is carried out every quarter while a weekly visual examination of monitoring data is undertaken and any unusual data is flagged up.

Appendix D: Map(s) of Monitoring Locations and AQMAs

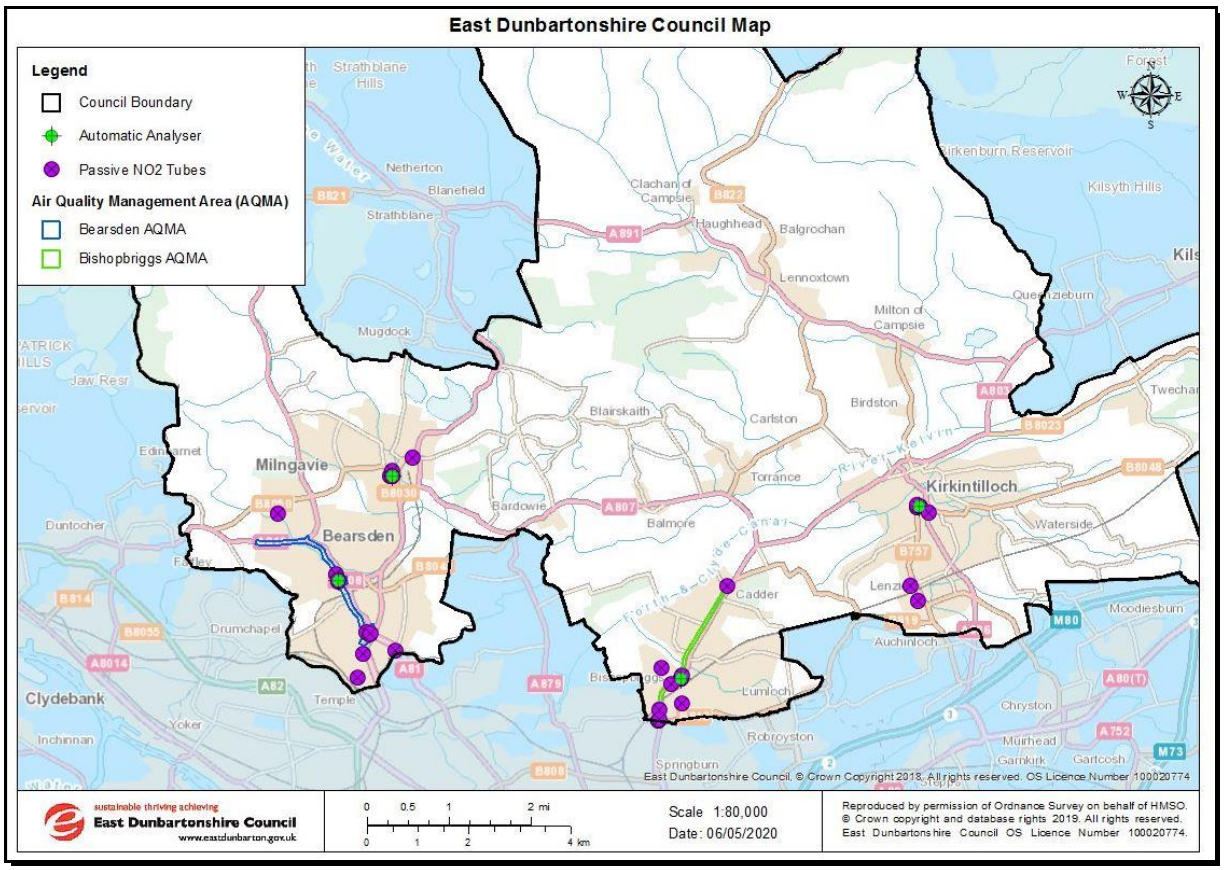

Figure 3 Passive NO_2 Tubes and Automatic Monitoring Site Location Maps

Appendix E: Automatic Monitor trends 2013 -2019

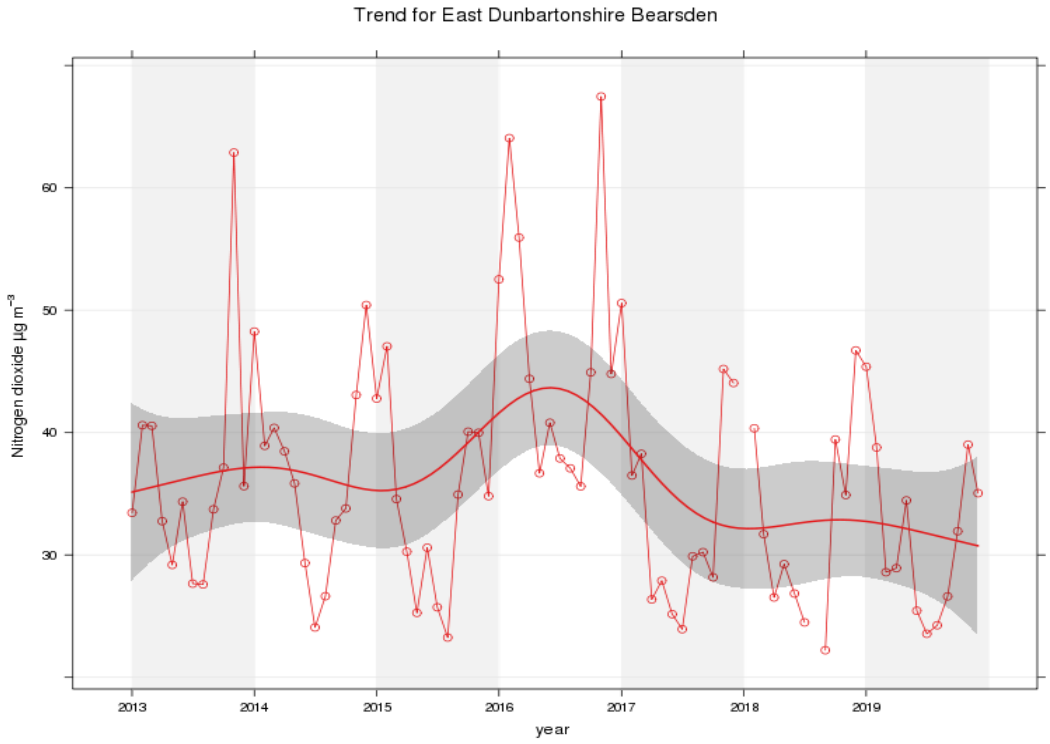

Figure 4 NO_2 Trend for Bearsden Cross

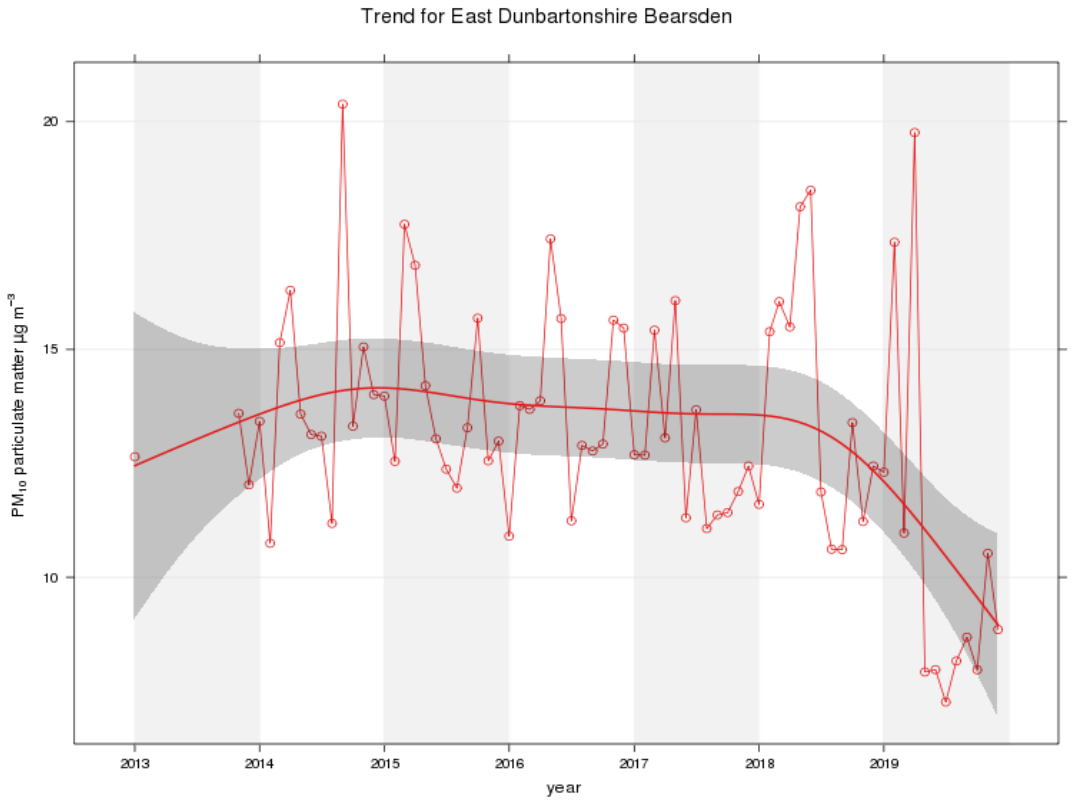

Figure 5 PM_{10} Trend for Bearsden Cross

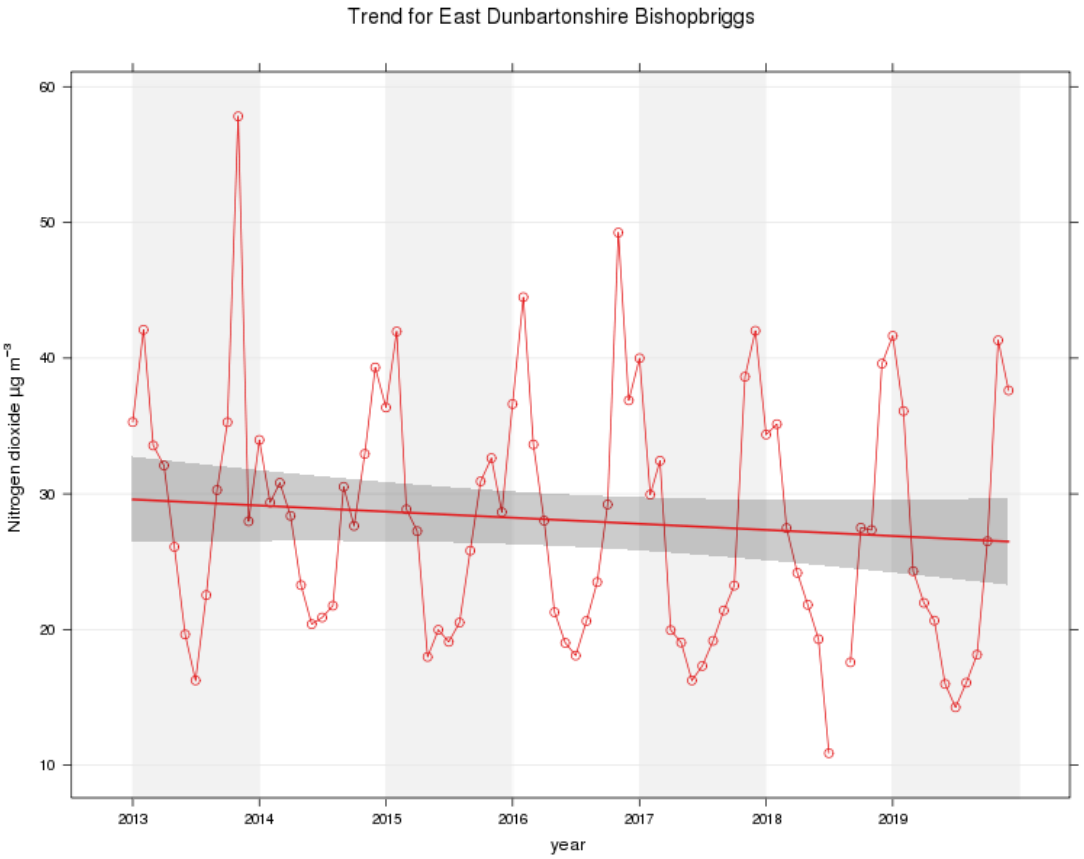

Figure 6 NO_2 Trend for Bishopbriggs Crowhill Road

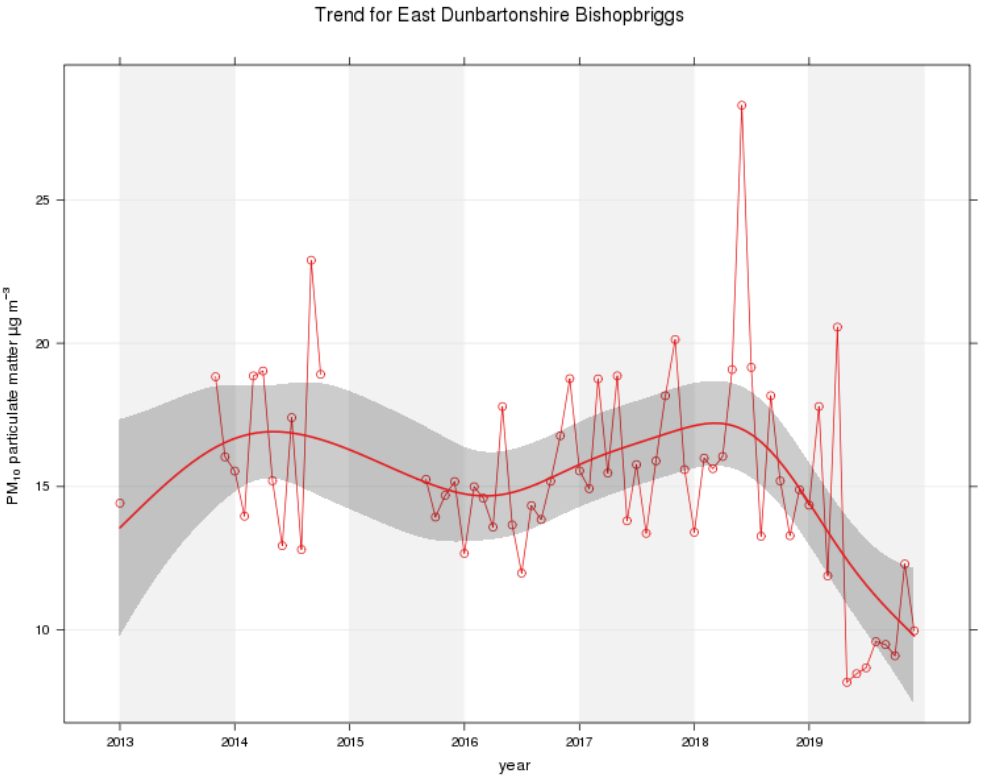

Figure 7 PM_{10} Trend for Bishopbriggs Crowhill Road

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

1. Local Air Quality Management Technical Guidance TG(16), Department for Environment, Food and Rural Affairs (DEFRA), 2018
2. East Dunbartonshire Bearsden Air Quality Action Plan
3. East Dunbartonshire Bishopbriggs Air Quality Management Area Action Plan
4. East Dunbartonshire Bishopbriggs Air Quality Management Area Update
5. East Dunbartonshire Local Transport Strategy 2020-2025