Annual Progress Report (APR)

2023 Air Quality Annual Progress Report (APR) for East Lothian Council

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

Local Air Quality Management

September 2023

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Executive Summary: Air Quality in Our Area

Air Quality in East Lothian

East Lothian Council considered the declaration of an Air Quality Management Area (AQMA) for potential exceedance of the Nitrogen dioxide (NO_2) annual mean Air Quality Objective (AQO) after submission of the 2013 Progress Report (Ref 1). In November 2013, following completion of the 2013 Progress Report, an AQMA was declared in Musselburgh (Ref 2) in relation to breaches and likely breaches of the Nitrogen Dioxide annual mean air quality objective. The extent of the AQMA is High Street, Musselburgh (A199) from its junction with Newbigging and extending westwards to the junction with Bridge Street and Mall Avenue. A map of the extent and location of the AQMA is provided in Appendix D.

Following declaration of the AQMA East Lothian Council commissioned a Further Assessment (Ref 3) of Air Quality in Musselburgh. The assessment provided the technical justification for the measures the authority later included in any Air Quality Action Plan (AQAP). The Further Assessment was completed in September 2014 and confirmed the findings of the previous Detailed Assessment in 2012 (Ref 4), namely that there were likely to be continued exceedance's of the annual mean NO_2 objective where relevant exposure exists.

The Further Assessment estimated that ambient Nitrogen oxides (NO_x) reductions in the AQMA of up to 27% at some locations were required in order to achieve compliance with the annual mean NO_2 objective and, furthermore, that a source apportionment exercise indicates that emissions from buses form the largest contribution at all locations along the High Street AQMA. An integrated package of interventions would most likely be required to provide the best NO_x reductions. Measures that reduced overall traffic, reduced queuing and reduced bus numbers, where appropriate, would reduce road NO_x significantly. These measures are however very challenging (both financially and technically) to implement.

The contour plots and dispersion modelling prepared for the Further Assessment indicated that the AQMA boundary included all relevant sources and did not require revocation or amendment at that time.

The 2014 Progress Report (Ref 5) and 2015 Updating & Screening Assessment (Ref 6) confirmed that NO_2 emissions in 2013 and 2014 continued to exceed, or were very close to, the Annual Mean Air Quality Objective for NO_2 at some locations within the AQMA. The 2016 Progress Report (Ref 7) and monitoring results from 2015 indicated that all Air Quality Objectives were complied with and there were no exceedance's of any objectives, including the NO_2 Annual Mean AQO.

East Lothian Council continued to develop and, in February 2017, published an AQAP to outline the measures to be taken to ensure compliance with the Objectives (Ref 8).

However, the 2017 Progress Report (Ref 9) confirmed that during 2016 exceedance's of the NO_2 Annual Mean AQO within the AQMA were again recorded at two locations. There were no other exceedance's of any other AQO noted throughout the County

The 2018 Progress Report (Ref 10) and monitoring results from 2017 indicated that all Air Quality Objectives were complied with and there were no exceedance's of any objectives, including the NO_2 Annual Mean AQO.

The 2019 Progress Report (Ref 11) and monitoring results from 2018 again confirmed no exceedance of any Air Quality Objectives, including within the AQMA.

The 2020 Progress Report (Ref 12) and monitoring results from 2019 confirms there were no exceedance's of any AQO during 2019.

The 2021 Progress Report (Ref 13) and monitoring results from 2020 confirms there were no exceedance's of any AQO during 2020 with the last exceedance being recorded in 2016.

The 2022 Progress Report concluded that monitoring results from 2021 confirm there were no exceedance's of any AQO during 2021.

East Lothian Council have also carried out a Detailed Assessment of Air Quality in Musselburgh (Ref 14) which was published in September 2022 and the results confirm that there were no exceedances of any AQO within the AQMA since 2016 and also concludes that future exceedances are unlikely. As such, East Lothian Council sought permission from the Scottish Government to revoke the Musselburgh AQMA, which was granted in December 2022. East Lothian Council are in the process of carrying out a consultation exercise with relevant stakeholders to seek their comments on the proposed

revocation of the AQMA. A draft Revocation Report will be available to consultees as part of the revocation process. It is anticipated that the revocation of the AQMA will be completed by Autumn 2023.

This report concludes there were no further exceedances of any Air Quality Objectives during 2022. Monitoring of NO_2, PM_{10} and $PM_{2.5}$ will continue and the results will be presented in the APR due to be published by end of June 2024.

A summary of all previous Review and Assessment Reports is provided in Appendix E.

Actions to Improve Air Quality

Results of monitoring for the 12-month period from 01/01/22 to 31/12/22 indicate no exceedances of the NO_2 Annual Mean AQO. East Lothian Council published the Musselburgh Air Quality Action Plan in February 2017. The AQAP outlines 13 short, medium and longer term measures to be implemented to improve air quality within the AQMA and throughout the County in general.

East Lothian Council have carried out a Detailed Assessment of Air Quality in Musselburgh (Ref 14) and the results confirm that there were no exceedances of any AQO within the AQMA since 2016 and also concludes that future exceedances are unlikely. As such, East Lothian Council is in the process of revoking the AQMA with this expected to be completed during Autumn 2023.

In February 2022 East Lothian Council also commenced monitoring of $PM_{2.5}$ at it's automatic monitoring site in Musselburgh. This is in addition to existing automatic monitoring at the site of PM_{10} and Nitrogen dioxide.

Local Priorities and Challenges

Some of the mitigation measures outlined in the AQAP continue to be very challenging (both financially and technically) to implement and sustain. In particular the development and implementation of the Local Transport Strategy in conjunction with the Local Development Plan will be key to managing air quality. The proposed transport mitigation measures set out in the LDP are anticipated to help improve Air Quality within the Musselburgh AQMA and beyond.

Assessing the impact of the Covid 19 pandemic as we move into the recovery phase, continues to be challenging due to a potential lack of public confidence in using public

transport aligned with increased working from home and reduced traffic journeys by commuters.

How to Get Involved

Further information on Air Quality within East Lothian, including access to annual air quality reports, can be obtained from the Council's App or website at:

Air quality | Pollution | East Lothian Council

Information on local and national Air Quality, including access to real-time data and maps can be obtained from the Air Quality in Scotland website at: Home page | Scottish Air Quality

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1 Local Air Quality Management

This report provides an overview of air quality in East Lothian during 2022. It fulfils the requirements of Local Air Quality Management (LAQM) as set out in Part IV of the Environment Act 1995 (Ref 15), as amended by the Environment Act 2021 (Ref 16) and the relevant Policy (Ref 17) and Technical Guidance documents (Ref 18).

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

Table 1.1 – Summary of Air Quality Objectives in Scotland

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

2 Actions to Improve Air Quality

2.1 Air Quality Management Areas

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

A summary of AQMAs declared by East Lothian 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 Air quality | Pollution | East Lothian Council

We propose to revoke High Street, Musselburgh AQMA (see monitoring section).

Table 2.1 – Declared Air Quality Management Areas

AQMA Name	Pollutants and Air Quality Objectives	City / Town	Description	Action Plan
High Street, Musselburgh	NO2 annual mean	Musselburgh	High Street, Musselburgh (A199) from its junction with Newbigging and extending westwards to the junction with Bridge Street and Mall Avenue	https://www.eastlothian.gov.uk/downloads/file/23473/air_quality_action_plan_2017

2.2 Cleaner Air for Scotland 2

Cleaner Air for Scotland 2 – Towards a Better Place for Everyone (CAFS2) (Ref 19) is Scotland's second air quality strategy. CAFS2 sets out how the Scottish Government and its partner organisations propose to further reduce air pollution to protect human health and fulfil Scotland's legal responsibilities over the period 2021 – 2026. CAFS2 was published in July 2021 and replaces Cleaner Air for Scotland – The Road to a Healthier Future (CAFS) (Ref 20), which was published in 2015. CAFS2 aims to achieve the ambitious vision for Scotland "to have the best air quality in Europe". A series of actions across a range of policy areas are outlined, a summary of which is available on the Scottish Government's website.

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

Placemaking – Plans and Policies

Local authorities with support from the Scottish Government will assess how effectively air quality is embedded in plans, policies, City Deals and other initiatives, and more generally in cross departmental working, identifying and addressing evidence, skills, awareness and operational gaps.

Climate Change and Air Quality

In the Updated Climate Change Plan (2018-2023), the Scottish Government calls for local authorities to address air quality together with low emissions targets and wider environmental outcomes relating to transport and agriculture. East Lothian Council's Climate Change Strategy 2020–2025 (Ref 21) was approved by Cabinet in January 2020. The Climate Change Strategy sets out the Council's commitment to tackling the Climate Emergency at a local level with the vision and overall aims for a 'Net Zero Council' and a 'Carbon Neutral East Lothian'. The strategy was developed with an extensive consultation process, including input from the Council's Climate Change Planning & Monitoring Group (which includes the Senior Environmental Health & Public Protection Officer with responsibility for Air Quality Management) and two rounds of public consultation. This included public drop-in consultation events, which were also an opportunity for awareness-raising and engagement on ways to reduce carbon emissions and promote a more sustainable lifestyle.

One of the seven key Outcomes set out in the Council's Climate Change Strategy is: "Active Travel and Sustainable Transport are used for everyday journeys, to drastically cut emissions from transport and improve air quality", with the ambition and targets to: "Ensure that East Lothian has well-connected, healthy, active communities with improved air quality, where active travel and sustainable transport modes are the norm to access local services and amenities". This Outcome includes the specific Key Priority Area of "Improving Air Quality", which sets out five actions that are annually updated to track progress. These actions are to:

- Continue to improve air quality in Musselburgh's Air Quality Management Area with traffic management solutions, active travel and public transport improvements, increased access to electric vehicle charging points and public awareness-raising campaigns;

- Investigate collaborative working with City of Edinburgh Council to identify solutions to tackle traffic congestion and air quality in Musselburgh;

- Reduce exposure to poor air quality through urban placemaking, including appropriate green network solutions such as hedges / use of landscaping to buffer emitting development;

Expand Air Quality awareness-raising campaign to end idling of vehicles; including promoting health and wellbeing implications of cleaner air. This will be achieved through:

1) Continue supporting the work of the East Central Scotland Vehicle Emissions Partnership to promote and raise awareness of air quality, particularly around our schools, and to deter idling vehicles, and

2) Promoting implications for long-term health and wellbeing, contribution to Placemaking, reducing social isolation and reducing inequalities through reduced reliance on cars.

The Climate Change Strategy also promotes active travel (walking/cycling) and sustainable transport (e.g. electric vehicles; taking the bus or train), particularly for shorter journeys. The strategy aims to encourage behaviour change towards active and sustainable travel, which will help to reduce traffic-related air pollution (as well as wider benefits including contributing to reducing the carbon emissions that cause global warming, and improving health, wellbeing and physical activity levels)

Planning Policy and Air Quality

The East Lothian Local Development Plan 2018 (Ref 22) was adopted on 27th September 2018. The Local Development Plan 2018 used a compact spatial strategy to allocate land for over 10,000 new homes and land for new employment in East Lothian. This primarily involved the expansion of existing settlements in order to deliver the level of growth as sustainably as possible. Where possible, existing infrastructure such as transport, utilities and education facilities were upgraded to accommodate this growth. In some areas new infrastructure was required. The majority of these new homes and infrastructure are either completed, are under construction, or have live planning consents. Improvements to

existing transport infrastructure are also being made which will assist with improving air quality and reductions in private car journeys. Work is progressing as scheduled on the construction of a new railway station at East Linton as part of PROP T12. The new station is expected to open in spring 2024. Work has been completed at the Old Craighall junction of the A1 as part of improvement set out in PROP T15. Furthermore, the Segregated Active Travel Corridor (SATC) continues to be constructed as part of PROP T3. Increased cycle parking at railway stations is also being introduced. Consultation on Musselburgh Active Toun proposals was largely supported by the public which, once implemented, will see improvements to the cycling and walking network in East Lothian's largest town. Policy T30 set out proposals for 20mph limits in towns, and this has also been rolled out across the county. As part of policy T31, the electric vehicle charging network is being expanded, as well as the implementation of journey hubs, all contributing to reducing greenhouse gas emissions and improving air quality.

Policies in the LDP 2018 set out how new development must contribute towards sustainable growth, and also how the social, economic and environmental impacts are managed. In relation to air quality and environmental impacts, policy NH12 is used to manage the effects of new development, and sets out when an Air Quality Assessment would be required in support of a proposal. Policies relating to development location and transport impact (T1 and T2) as well as design policies (DP2, DP3 and DP4) assist with decision making on new development proposals and their impacts upon air quality.

Supplementary Guidance (SG) provides more detailed and location specific measures on how the LDP 2018 strategies would be delivered and how policies would be applied. This included the Town Centre Strategies SG which seeks to encourage less vehicle use within town centres, more public transport use, and more walking and cycling, all of which contribute to better air quality. The Developer Contributions Framework SG set out the type of contributions that developers would be required to provide as part of new development in order to ensure both residential only sites and mixed-use sites have access to facilities. This reduces the need to travel therefore reducing environmental impacts and improving air quality.

Supplementary Planning Guidance further expands upon specific policy areas or strategies of the LDP 2018. This includes the Green Network Strategy SPG which provides guidance on how to connect parts of East Lothian via walking and cycling routes, reducing car travel and emissions. The Design Standards for New Housing Areas SPG

places the movement and experiences of people at the top of the design agenda, and sets out criteria for designing new development to provide easy walking routes, access to open space, improving health and wellbeing through better air quality, reducing levels of noise, and managing the effects of climate change. It also encourages electric vehicle charging in new developments to reduce carbon emissions.

East Lothian has one air quality management area (AQMA) which is Musselburgh High Street. This, together with other parts of the county, are continually monitored. The LDP 2018 contains proposals (PROP T19, T20 and T21) setting out a range of improvements to improve air quality in this AQMA. The annual air quality progress report provides the latest figures and shows how Musselburgh High Street and other areas are performing. The results of this report are used to inform policy planning.

Following the introduction of the Planning (Scotland) Act 2019 (Ref 23), the Scottish Parliament approved a National Planning Framework 4 (NPF4). The NPF4 is part of the development plan and includes national policy. East Lothian has started the early stages of reviewing the LDP 2018 and preparing the next LDP under the new development planning system set out in the 2019 Act. The first stage of the LDP process is the production of an Evidence Report which will then lead to a draft LDP2. The Evidence Report must contain information on the issues set out in the 2019 Act. Preparation of the Evidence Report is underway and to facilitate this process the Council is undertook a public engagement exercise to gather the views of the communities and other interested groups (Evidence Report engagement | LDP2 and Local Place Plans | East Lothian Council). East Lothian has grown quite significantly in the last 5-10 years, and it is important to establish a baseline in terms of the social, economic and environmental position to look to the future and what changes could be introduced to further improve the area.

For the Evidence Report, the Council will look at areas that may be constrained in terms of air quality, what could be done to improve areas that are not performing as well, and how to continue to protect areas that are. An overall strategy will emerge from the information gathered and engagement undertaken. Once the Evidence Report has passed the gate check procedure, LDP2 can be prepared. The LDP2 will then set out a clear long-term direction in terms of growth, investment and change. LDP2 will contain the policies and proposals required to deliver and achieve the strategy set out in the Evidence Report. There will be further extensive consultation carried out during the preparation of LDP2.

This will include workshops with various stakeholders and the general public. We will continue use tools such as the Place Standard in order to help us to ascertain public opinions on their area and how and where improvements can be made. This is particularly important for the place-making aspects of LDP2, with a focus on improvements at a local level. Air quality plays a key part of this as it affects people's health and their ability to use and enjoy their environment. We will gather information on air quality using this approach and this will feed into policies aiming to achieve a range of localised improvements.

East Lothian contributed towards the preparation of an Indicative Regional Spatial Strategy (RSS). The RSS is a high level strategic planning document prepared jointly for regions of Scotland. East Lothian remains in the defined south east region, and jointly contributed towards the RSS with other authorities (Edinburgh, Midlothian, West Lothian and Fife).

The Regional Spatial Strategy (iRSS+final+.pdf (squarespace.com)) provides a long-term strategic approach to planning across south east Scotland. It focuses on environmental and climate issues primarily and how to continue to support south east Scotland in terms of sustainable growth. Air quality is linked closely with various aspects of spatial planning including regional aspirations for improvements to health, transport, employment, construction and materials.

East Lothian Council will continue to work both at the local and regional levels of development planning to continually improve air quality in the short and longer term, and will work closely with the public, landowners, businesses, and regulatory bodies on effective strategies to support this on small and large scale projects and development proposals.

Transport – Low Emission Zones

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

East Lothian has no Low Emission Zones established within the Local Authority area.

However, the Local Transport Strategy (LTS) (Ref 24) and associated action plans were adopted by Council on 30th October 2018. Through Smarter Choices Smarter Places, the Council intended to employ a Behavioural Change Officer to encourage alternative

transport modes in particular active travel. Unfortunately this was not progressed under Covid.

A draft ELC Travel Plan was prepared summer 2020 but due to the impacts of covid, in particular potential employer home working policy changes and the uncertainty of demand, reasonable target setting and mitigations are difficult to calculate. The original draft Travel Plan set targets to encourage sustainable transport options driving down single occupancy car use, which now is significant different from what was previously forecast. Confidence in public transport has significantly deteriorated and with lockdown relaxing high vehicle trips are being experienced. This is a challenging situation, but more data and trend analysis is needed to fully understand the longer term implications of the pandemic and our ability to influence behaviour. This is still evolving.

EV Infrastructure

East Lothian Council have upgraded older Electric Vehicle (EV) charging units and increased the number of public charge points in East Lothian to over 200. Our strategy has moved on from a focus on our now well-stablished strategic network to concentrate on ensuring that people who do not have a safe place to re-fuel at home, can access affordable charging. East Lothian Council have also developed policies to require developers to provide appropriate charging infrastructure alongside new housing and on retail and industrial sites, including those integrated into our own developments e.g. school extensions, and social housing.

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

In order to ensure that local authorities implement the measures within an action plan by the timescales stated within that plan, the Scottish Government expects authorities to submit updates on progress through the APR process. East Lothian Council has taken forward a number of measures within the action plan during the current reporting year of 2022 in pursuit of improving local air quality and meeting the air quality objectives within the shortest possible time. Details of all measures completed, in progress or planned are set out in Table 3.1. More detail on these measures can be found in the air quality Action Plan.

Key completed measures for this reporting year are:

- **Improving Links with Local Transport Strategy (Measure No 1)** – The development of the Local Transport Strategy (Ref 24) was deferred because of the delay in determining the exact nature of the interventions associated with the LDP. To identify these interventions SIAS were commissioned to build a micro-simulation (S-paramics) model of the strategic and local road network to form a 2012 base and predict cumulative traffic impacts on the strategic and local road network having regard to future development of the preferred sites identified in the LDP. The micro-simulation traffic modelling work is now complete and ELC consulted on the LTS in conjunction with its Strategic environmental assessment. The Local Transport Strategy (LTS) and associated action plans were adopted by Council on 30th October 2018. At Council on 28th June approval to consult on the introduction of parking charges and associated parking mitigation was given with a goal to report back on public engagement in winter 2023. As part of wider considerations, as means to reduce unnecessary vehicular traffic, tackle climate change and contribute to improvements to health and well-being, a refresh of the Local Transport Strategy would run concurrently with the parking review and introduction of measures.

  On 22 February 2022, East Lothian Council endorsed the draft Regional Transport Strategy, which is developed to provide a strategic framework for transport interventions across the region, to drive forward strategic objectives to transition to a post carbon, sustainable transport system, facilitate healthier travel, improve connectivity and access, and support safe, efficient movement of people and freight. Furthermore, an officer lead response to Scottish Transport Project Review 2 and 20% reduction in car km looked to endorse sustainable transport interventions to reduce car based trips nationally.

  The East Lothian Access Study *Case for Change* was made February 2020, with work now concluded on *Part 1 –Initial Appraisal* in November 2021. Transport Scotland are yet to feedback and comment but these are expected late July 2022. *Part 2 - Detailed Appraisal* commenced January 2022. Discussions are ongoing with Transport Scotland for Part 1 high level interventions to be included in the Scottish Transport Project Review (STPR2) running parallel. Separate, but intricately linked, work to develop models to inform LDP2 evidence report has started and will be available by the end of the year. In association, testing of timeframe, and sequencing when LDP1 interventions is also ongoing to understand the changing demand and when adaptation of the road network are necessary.

Due to funding uncertainty there has been a 6 month hiatus on project delivery. Feedback from Transport Scotland following a review of the preliminary and detailed appraisal has questioned the case for change made in 2020. Accordingly, the TPO's are being reviewed and evidence examined as to whether the problems identified then currently exist now following the pandemic. Included will be further testing of high low scenarios in line with Government policy and the packaging of interventions, all within the programme being accelerated to meet the fund closing on the 29th March 2024.

- **Improving Links with Local Development Plan (Measure No 2)** – Refer to Section 2.2 above
- **Bus Stop Relocations on High Street, Musselburgh (Measure No 3) -** The local network Musselburgh town centre mitigations tested within the Musselburgh and Tranent Traffic Model (MTTM) for the High Street are:
    - Adjusting the eastbound lane arrangement for Mall Avenue at the A199 High Street/ Bridge Street junction.
    - Consolidation of pedestrian crossings between Bridge Street and Kilwinning Street.
    - Moving westbound bus lay-by into car parking spaces and further back from the Bridge Street junction to remove the traffic obstruction on the High Street.
    - Extending the eastbound bus lay-by to remove bus dwell obstruction on the High Street before Shorthope Street
    - Adding a bus lay-by westbound on the A199 Linkfield road opposite Loretto School
    - A right turn on the High Street for Kilwinning street.

    The timing of these measures is currently unknown but will include new signalised junctions and re-signalisation of junctions. Following an initial consultation in 2018 to examine options to future proof Musselburgh's infrastructure for sustainable modes of travel, East Lothian Council instructed AECOM to undertake phase 2 of the project to develop visualisations to test public acceptability and encourage engagement. It is anticipate further consultation will commence late autumn. To progress scheme development, East Lothian Council has bid into SUSTRANS paths for everyone and hope to receive confirmation that the bid has been successful shortly. The project plan will look to deliver comprehensive re-allocation

of street space over a 5 year period, subject to funding. No material change. Further feasibility and preliminary design work being carried out now.

Work has been undertaken through the Bus Priority rapid deployment fund in response to covid to increase patronage, reliability and speed up services. In Musselburgh the bus stops on the High Street have been split to avoid bus queuing and unnecessary delays. As advised above, additional funding has been received to investigate additional measures to improve bus journey times. These measures with the ongoing, Musselburgh active toun are designed to improve pedestrian accessibility, access and active and sustainable transport. The measures are now embedded and working well.

- **Enforcement of idling provisions of the Road Traffic (Vehicle Emission) (Fixed Penalty) (Scotland) Regulations 2003 (Measure No 4)** - To alleviate the effect of indiscriminate parking at the eastbound bus stop on the High Street during peak hour traffic, a parking attendant has been instructed to monitor and take appropriate action to keep traffic moving.
- **Eco Stars Fleet Recognition Scheme (Measure No 6)** – East Lothian Council secured funding from the Scottish Government and, in February 2017, formally launched an Eco Stars Fleet Recognition Scheme within East Lothian. The scheme provides recognition for best operational practices and guidance for making improvements to fleet operators with the ultimate aim of reducing fuel consumption and reduced emissions. The Council's own fleet, together with Commercial Fleet Operators will be encouraged to engage with the scheme which will have a positive impact on emissions, including within the AQMA in Musselburgh High Street. East Lothian Council are members of the scheme and are proud to have been awarded a 5 Star rating. The table below shows how the scheme has grown annually since 2017 until September 2023:

YEAR	NUMBER OF MEMBERS	NUMBER OF VEHICLES
2017	114	5600
2018	141	6607
2019	170	6980

2020	205	7524
2021	219	7806
2022	222	7919
2023	247	8836

Funding has been secured from the Scottish Government to allow the scheme to continue to operate and expand through 2023/24.

- **SCOOT Traffic Management System (Measure No 7)** – Funding remains in place to upgrade the SCOOT system and integrate new signalised junctions into the system. A 5-year project to future proof Musselburgh infrastructure for sustainable modes is underway. East Lothian Council have applied for funding with Sustrans, a UK Sustainable Transport Charity, to develop this project. This project will examine the performance of all transport networks to accommodate significant modal shift to active travel. A review of all SCOOT arrangements will be considered in the context of this work. No material change. Further feasibility and preliminary design work being carried out now. Application to the Bus Partnership fund has secured £3.3m over the next 2-3 year through Edinburgh South East Scotland City Region Deal to introduce bus journey time improvements. This combined with the above interventions will examine potential UTC and AVL technologies to prioritise public transport.
- **AQMA Signage (Measure No 9)** – East Lothian Council commissioned a City Tree within the AQMA in Musselburgh during late Summer of 2018. As well as providing the locus for the Tree, the structure also contains signage and information on Air Quality. The tree had to be removed in Autumn 2019 due to problems with the irrigation system.
- **The East Central Scotland Vehicle Emissions Partnership (Measure No 10)** – East Lothian Council works in partnership with Midlothian, West Lothian, Falkirk and, since 2019, Stirling Councils with a common aim of raising awareness of vehicle emissions and impacts on air quality amongst the general public. The partnership also investigates complaints of idling and provides an educational element to increasing awareness of air quality impacts from road traffic. Further

information on the work of the Partnership can be obtained at the following link: Home - Switch off and Breathe

- **Provision of Information regarding Air Quality and Travel Options (Measure No 13)** – Information on Air Quality within East Lothian, including access to annual air quality reports, can be obtained from the Council's App or website at: Air quality | Pollution | East Lothian Council

Progress on the following measures has been slower than expected due to lack of commitment from stakeholders or need for issue to be considered as part of a regional strategy:

- **Electrification of Lothian Buses in Musselburgh (Measure No 5)** – Due to a lack of commitment from relevant stakeholders regarding funding this project may not be taken forward. Other funding avenues are being explored.
- **Longer Trains and platforms at Musselburgh Rail Station (Measure No 8)** – Developer contributions are being collected through the planning process and individual agreements entered into with Network Rail. Longer platforms are required because longer train sets are needed to accommodate the predicted increased patronage. The platforms are only needed close to full build out of all committed and LDP allocations. It is unlikely this will be delivered until CP7. (2024-2029) Further work is being undertaken through the STAG (Scottish Transport Appraisal Group) East Lothian Access strategy working with Transport Scotland rail branch and Network rail to increase capacity on the ECML and North Berwick branch line. This intervention is being considered as part of the wider STAG appraisal working ongoing at this time. As per the STAG appraisal, the problems and opportunities are being re-examined as to whether the demand on services currently exists. Evidence to date intimates existing trains have sufficient capacity, as peak hour demand has not returned, however, other variables are in play which may be diminishing demand, still to return. A full analysis and recommendation of future rail requirements will be identified on completion of the appraisal.
- **Development of Green Travel Plans (Measure No 11) and Promotion of Cycling and Walking (Measure 12) –** The Smarter Choices, Smarter Places (SCSP) Programme is a Paths for All grant scheme to support behaviour change initiatives to increase active and sustainable travel. The programme is funded through Transport Scotland (Sustainable Transport team) and aims to make

walking and cycling a mode of choice for short local journeys in our towns, cities and villages. It also encourages other forms of sustainable choices such as public transport use and car share. This will help to cut Scotland's carbon emissions and improve our air quality. It will help reverse the trend towards sedentary lifestyles and will tackle health inequalities. ELC receives funding through the scheme and in 2019/20 will engage a behavioural change officer to work with communities, groups and organisations to encourage greener, more active travel options. The Council also bid to run a 'beat the streets' game to foster greater belief in walking and cycling through community participation interacting in a socially interactive game. The beat the streets project has concluded. A final report is being prepared to inform readers of the level of success achieved and legacy projects. Due to the impact of covid, the report was not formally registered or recognised as a successful trial. Further consideration will be given to continuation of the programme in other Area partnerships at a later date. A i-bike officer and improved messaging on active sustainable travel options is being prepared. A part-time i-bike officer has been employed through Smarter choices smarter places fund. Engagement with schools is ongoing. The Workforce Mobility Project is conducting a study of journey hubs and the outcome will feed into work carried out by our Behavioural Change officer to move travellers from private cars into sustainable and active modes of travel. Green Travel plans are being developed within the council and with other major employers in East Lothian.

Table 3.1 – 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	Refer to	Estimated Completion Date	Comments
1	Improving Links with Local Transport Strategy	Transport planning and infrastructure	To reduce unnecessary vehicular traffic, tackle climate change, contribute to improvements to health and well-being and maintain road traffic associated pollution below Air Quality objective levels by as much as possible.	ELC Road Services					Due to funding uncertainty there has been a 6 month hiatus on project delivery. Feedback from Transport Scotland following a review of the preliminary and detailed appraisal has questioned the case for change made in 2020. Accordingly, the TPO's are being reviewed and evidence examined as to whether the problems identified then currently exist now following the pandemic. Included will be further testing of high low scenarios in line with Government policy and the packaging of interventions, all within the programme being accelerated to meet the fund closing on the 29th March 2024.	Ongoing	

Measure No.	Measure	Category	Focus	Lead Authority	Planning Phase	Implementation Phase	Key Performance Indicator	Target Pollution Reduction in the AQMA	Refer to	Estimated Completion Date	Comments
2	Improving Links with Local Development Plan	Policy Guidance and Development Control	The proposed LDP contains transport mitigation measures that are intended to manage through traffic within Musselburgh town centre, including within the AQMA. The proposed transport mitigation measures set out in the LDP are anticipated to help improve Air Quality within the Musselburgh AQMA.	ELC Planning Service					Refer to Paragraph 2.2 above	Completed Sep 2018	Ongoing

Measure No.	Measure	Category	Focus	Lead Authority	Planning Phase	Implementation Phase	Key Performance Indicator	Target Pollution Reduction in the AQMA	Refer to	Estimated Completion Date	Comments
3	Bus Stop Relocations on High Street, Musselburgh	Traffic Management	To improve the flow of traffic within the AQMA and reduce congestion.	ELC Road Services					Work has been undertaken through the Bus Priority rapid deployment fund in response to Covid to increase patronage, reliability and speed up services. In Musselburgh the bus stops on the High Street have been split to avoid bus queuing and unnecessary delays. As advised above, additional funding has been received to investigate additional measures to improve bus journey times. These measures with the ongoing, Musselburgh Active Toun are designed to improve pedestrian accessibility, access and active and sustainable transport. The measures are now embedded and working well.	Ongoing	

Measure No.	Measure	Category	Focus	Lead Authority	Planning Phase	Implementation Phase	Key Performance Indicator	Target Pollution Reduction in the AQMA	Refer to	Estimated Completion Date	Comments
4	Enforcement of idling provisions of the Road Traffic (Vehicle Emission) (Fixed Penalty) (Scotland) Regulations 2003	Traffic Management	Prevention of unnecessary pollution from stationary vehicles within the AQMA.	ELC Road Services					To alleviate the effect of indiscriminate parking at the eastbound bus stop on the High Street during peak hour traffic, a parking attendant has been instructed to monitor and take appropriate action to keep traffic moving.	Ongoing	
5	Electrification of Lothian Buses in Musselburgh	Promoting Low Emission Transport	Minimisation of pollution within AQMA by providing electric charging facility to allow buses to switch to electric operation.	ELC Transport Services, Lothian Buses					Due to a lack of commitment from relevant stakeholders regarding funding this project may not be taken forward. Other funding avenues are being explored.	Unknown	

Measure No.	Measure	Category	Focus	Lead Authority	Planning Phase	Implementation Phase	Key Performance Indicator	Target Pollution Reduction in the AQMA	Refer to	Estimated Completion Date	Comments
6	Eco Stars Fleet Recognition Scheme	Vehicle Fleet Efficiency	The scheme provides recognition for best operational practices and guidance for making improvements to fleet operators with the ultimate aim of reducing fuel consumption and reduced emissions.	ELC Env Health					East Lothian Council formally launched an Eco Stars Fleet Recognition Scheme within East Lothian in February 2017. The scheme provides recognition for best operational practices and guidance for making improvements to fleet operators with the ultimate aim of reducing fuel consumption and reduced emissions. East Lothian Council are members of the scheme and are proud to have been awarded a 5 star rating. The scheme now has 247 members incorporating 8846 vehicles. Funding has been secured from the Scottish Government to allow the scheme to continue to operate and expand through 2023/24.	Established Feb 2017	Ongoing

Measure No.	Measure	Category	Focus	Lead Authority	Planning Phase	Implementation Phase	Key Performance Indicator	Target Pollution Reduction in the AQMA	Refer to	Estimated Completion Date	Comments
7	SCOOT Traffic Management System	Traffic Management	SCOOT is a system of Urban Traffic Control and monitors queue lengths at all junctions on the main arterial routes and alters signal timing to suit. This is monitored every 120 seconds and although monitored by East Lothian Council is controlled by the City of Edinburgh Council through their Traffic Control Room	ELC Road Services					A 5-year project to future proof Musselburgh infrastructure for sustainable modes is underway. East Lothian Council have applied for funding with Sustrans, a UK Sustainable Transport Charity, to develop this project. This project will examine the performance of all transport networks to accommodate significant modal shift to active travel. A review of all SCOOT arrangements will be considered in the context of this work. No material change. Further feasibility and preliminary design work being carried out now. Application to the Bus Partnership fund has secured £3.3m over the next 2-3 year through Edinburgh South East Scotland City Region Deal to introduce bus journey time improvements. This combined with the above interventions will examine potential UTC and AVL technologies to prioritise public transport.	Ongoing	

Measure No.	Measure	Category	Focus	Lead Authority	Planning Phase	Implementation Phase	Key Performance Indicator	Target Pollution Reduction in the AQMA	Refer to	Estimated Completion Date	Comments
8	Longer Trains and platforms at Musselburgh Rail Station	Transport planning and infrastructure	Provision of infrastructure to provide alternative mode of transport	ELC Road Services					It is unlikely this will be delivered until CP7. (2024-2029) Further work is being undertaken through the STAG (Scottish Transport Appraisal Group) East Lothian Access strategy working with Transport Scotland rail branch and Network rail to increase capacity on the ECML and North Berwick branch line. This intervention is being considered as part of the wider STAG appraisal working ongoing at this time. As per the STAG appraisal, the problems and opportunities are being re-examined as to whether the demand on services currently exists. Evidence to date intimates existing trains have sufficient capacity, as peak hour demand has not returned, however, other variables are in play which may be diminishing demand, still to return. A full analysis and recommendation of future rail requirements will be identified on completion of the appraisal.		

Measure No.	Measure	Category	Focus	Lead Authority	Planning Phase	Implementation Phase	Key Performance Indicator	Target Pollution Reduction in the AQMA	Refer to	Estimated Completion Date	Comments
9	AQMA Signage	Public Information	Increase awareness of Air Quality	ELC Env Health					East Lothian Council commissioned a City Tree within the AQMA in Musselburgh during late Summer of 2018. As well as providing the locus for the Tree, the structure also contains signage and information on Air Quality. The tree had to be removed in Autumn 2019 due to problems with the irrigation system.	Completed Sep 2018	Ongoing
10	The East Central Scotland Vehicle Emissions Partnership	Public Information	East Lothian Council work in partnership with Midlothian, West Lothian and Falkirk Councils aimed at raising awareness of vehicle emissions and impacts on air quality amongst the general public. The partnership also investigates complaints of idling and provides an educational element to increasing awareness of air quality impacts from road traffic.	Vehicle Emissions Officer, East Central Scotland Vehicle Emissions Partnership at West Lothian Council		2003			The partnership has secured funding to continue through 2023/24 and was expanded further when Stirling Council became a partner authority in 2019.	Completed 2003	Ongoing

11	Development of Green Travel Plans	Promoting Travel Alternatives	The Smarter Choices, Smarter Places (SCSP) Programme is a Paths for All grant scheme to support behaviour change initiatives to increase active and sustainable travel. The programme is funded through Transport Scotland (Sustainable Transport team) and aims to make walking and cycling a mode of choice for short local journeys in our towns, cities and villages. It also encourages other forms of sustainable choices such as public transport use and car share. This will help to cut Scotland's carbon emissions and improve our air quality. It will help reverse the trend towards sedentary lifestyles and will tackle health inequalities.	ELC Road Services					The Smarter Choices, Smarter Places (SCSP) Programme is a Paths for All grant scheme to support behaviour change initiatives to increase active and sustainable travel. The programme is funded through Transport Scotland (Sustainable Transport team) and aims to make walking and cycling a mode of choice for short local journeys in our towns, cities and villages. It also encourages other forms of sustainable choices such as public transport use and car share. This will help to cut Scotland's carbon emissions and improve our air quality. It will help reverse the trend towards sedentary lifestyles and will tackle health inequalities. ELC receives funding through the scheme and in 2019/20 will engage a behavioural change officer to work with communities, groups and organisations to encourage greener, more active travel options. The Council also bid to run a 'beat the streets' game to foster greater belief	Ongoing	

									in walking and cycling through community participation interacting in a socially interactive game. The beat the streets project has concluded. A final report is being prepared to inform readers of the level of success achieved and legacy projects. Due to the impact of covid, the report was not formally registered or recognised as a successful trial. Further consideration will be given to continuation of the programme in other Area partnerships at a later date. A i-bike officer and improved messaging on active sustainable travel options is being prepared. A part-time i-bike officer has been employed through Smarter choices smarter places fund. Engagement with schools is ongoing. The Workforce Mobility Project is conducting a study of journey hubs and the outcome will feed into work carried out by our Behavioural Change officer to move travellers from private cars into sustainable and active modes of		

Measure No.	Measure	Category	Focus	Lead Authority	Planning Phase	Implementation Phase	Key Performance Indicator	Target Pollution Reduction in the AQMA	Refer to	Estimated Completion Date	Comments
									travel. Green Travel plans are being developed within the council and with other major employers in East Lothian.		
12	Promotion of cycling and walking	Promoting Travel Alternatives	The Smarter Choices, Smarter Places (SCSP) Programme is a Paths for All grant scheme to support behaviour change initiatives to increase active and sustainable travel. The programme is funded through Transport Scotland (Sustainable Transport team) and aims to make walking and cycling a mode of choice for short local journeys in our towns, cities and villages. It also encourages other forms of sustainable choices such as public transport use and car share. This will help to cut Scotland's carbon emissions and improve our air quality. It will help reverse the trend towards sedentary lifestyles and will tackle health inequalities.	ELC Road Services					Refer to Measure 11 above	Ongoing	
13	Provision of Information regarding Air Quality and Travel Options	Public Information	Increase awareness of Air Quality and alternative modes of transport and travel options	ELC Env Health ELC Road Services					Information on Air Quality within East Lothian, including access to annual air quality reports, can be obtained from the Council's App or website at: Air quality | Pollution | East Lothian Council	Completed 2008	Ongoing

4 Air Quality Monitoring Data and Comparison with Air Quality Objectives

4.1 Summary of Monitoring Undertaken

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 Lothian Council undertook automatic (continuous) monitoring at 1 site during 2022. Table A.1 in Appendix A shows the details of the site and pollutants monitored. National monitoring results are available at Home page | Scottish Air Quality.

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.

Non-Automatic Monitoring Sites

East Lothian Council undertook non- automatic (passive) monitoring of NO_2 at 25 sites during 2022, with one of the sites containing triplicate tubes co-located with the automatic analyser. 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.

Other Monitoring Activities

East Lothian Council have updated their particular monitoring in Musselburgh and replaced the existing BAM PM10 for a new BAM PM Coarse System consisting of ET BAM1020 Beta-attenuation PM10 particulate analyser and ET BAM1020 Beta-attenuation PM2.5 particulate analyser. The new analysers were installed in February 2022 and meet equivalence criteria of the reference method for Particulates. Unfortunately, the existing Romon enclosure was overheating due to the presence of increased analysers within the unit and this had resulted in the loss of some data. However, funding was received from

the Scottish Government for a replacement and larger PR5 Enclosure that has addressed the overheating issue,

4.2 Individual Pollutants

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

Nitrogen Dioxide (NO_2)

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

For diffusion tubes, the full 2022 dataset of monthly mean values is provided in Appendix B.

Figures 1, 2 and 3 below show the trends for diffusion tubes located within the AQMA on Musselburgh High Street, for tubes located elsewhere in Musselburgh and also throughout the county between 2018-2022.

There have been no exceedances of the Annual Mean NO_2 Objective recorded at any locations, including those locations within the AQMA since 2016. Details of ratified data for the automatic monitor for 2022 are provided in Appendix C.

It can be seen that although there has been a slight increase in pollutant concentrations in 2022 since the easing of travel restrictions imposed from March 2020 during the Covid 19 Pandemic there has been a general downward trend in annual mean NO_2 concentrations from 2018 - 2022 throughout the County.

Table A.4 in Appendix A compares the ratified continuous monitored NO_2 hourly mean concentrations for the past five years with the air quality objective of 200µg/m^3, not to be exceeded more than 18 times per year. There were no exceedences of the hourly mean air quality objective in 2022

Figure 1: Diffusion Tubes in Musselburgh within AQMA 2018-2022

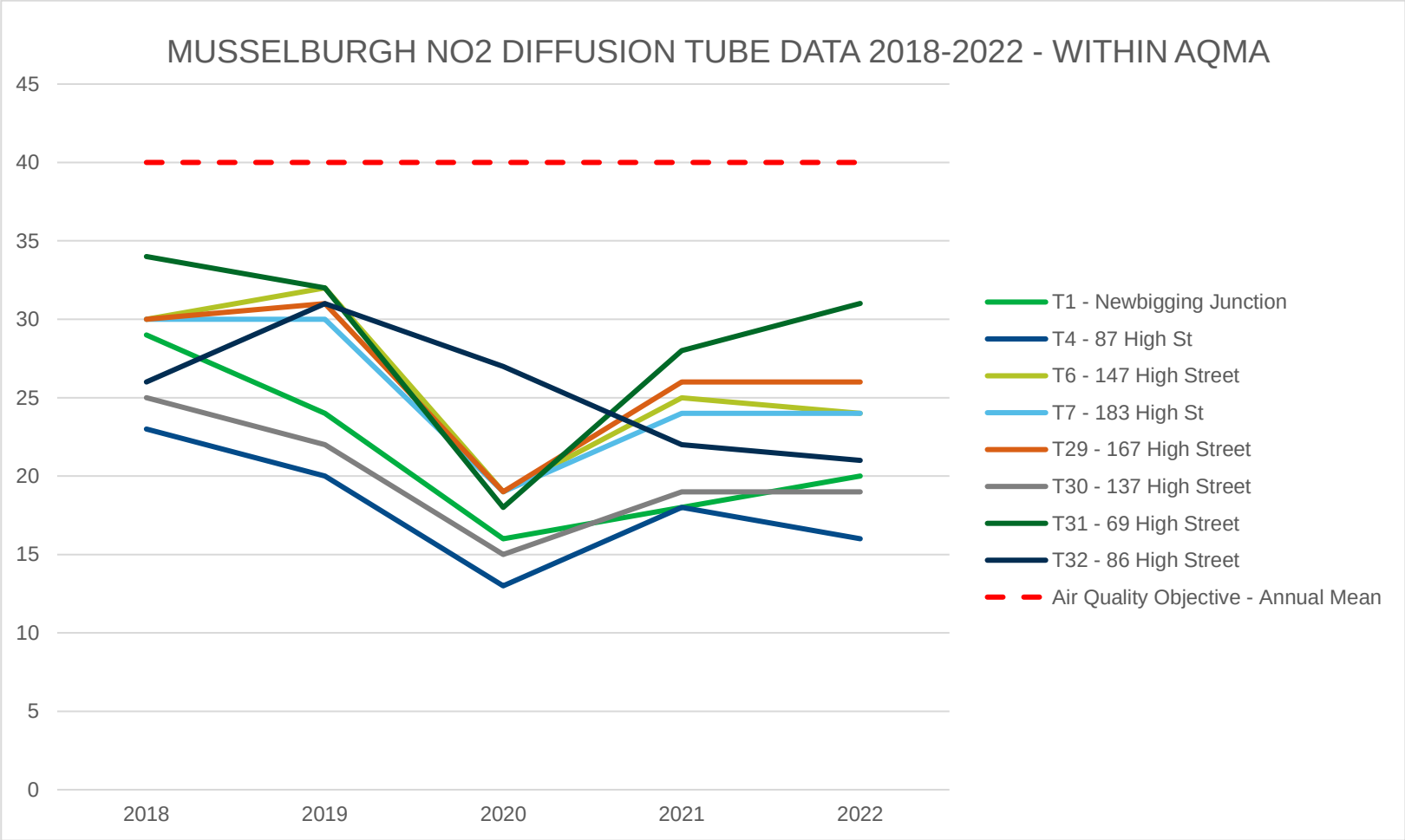


Figure 2: Diffusion Tubes in Musselburgh outside AQMA 2018-2022

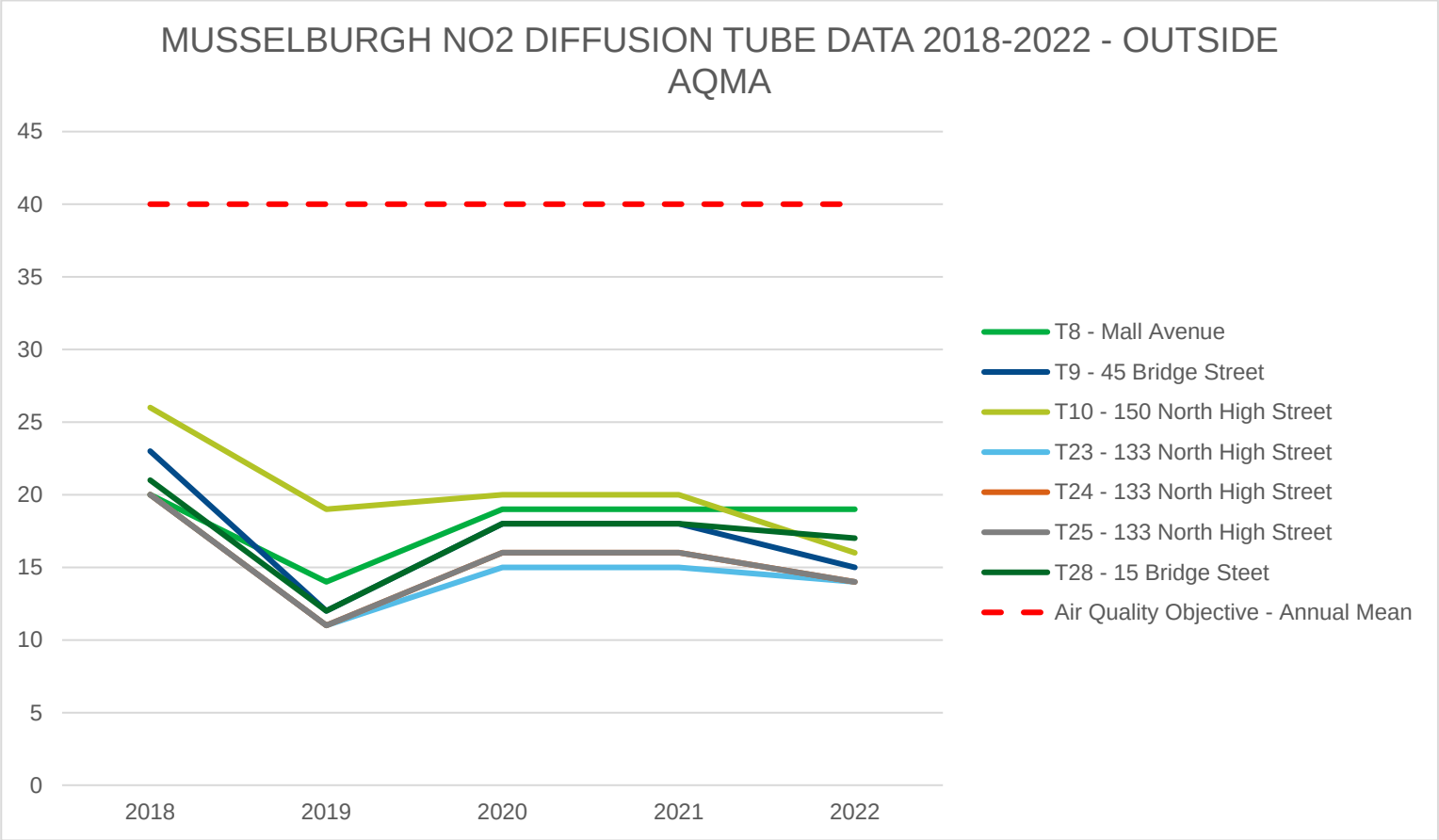
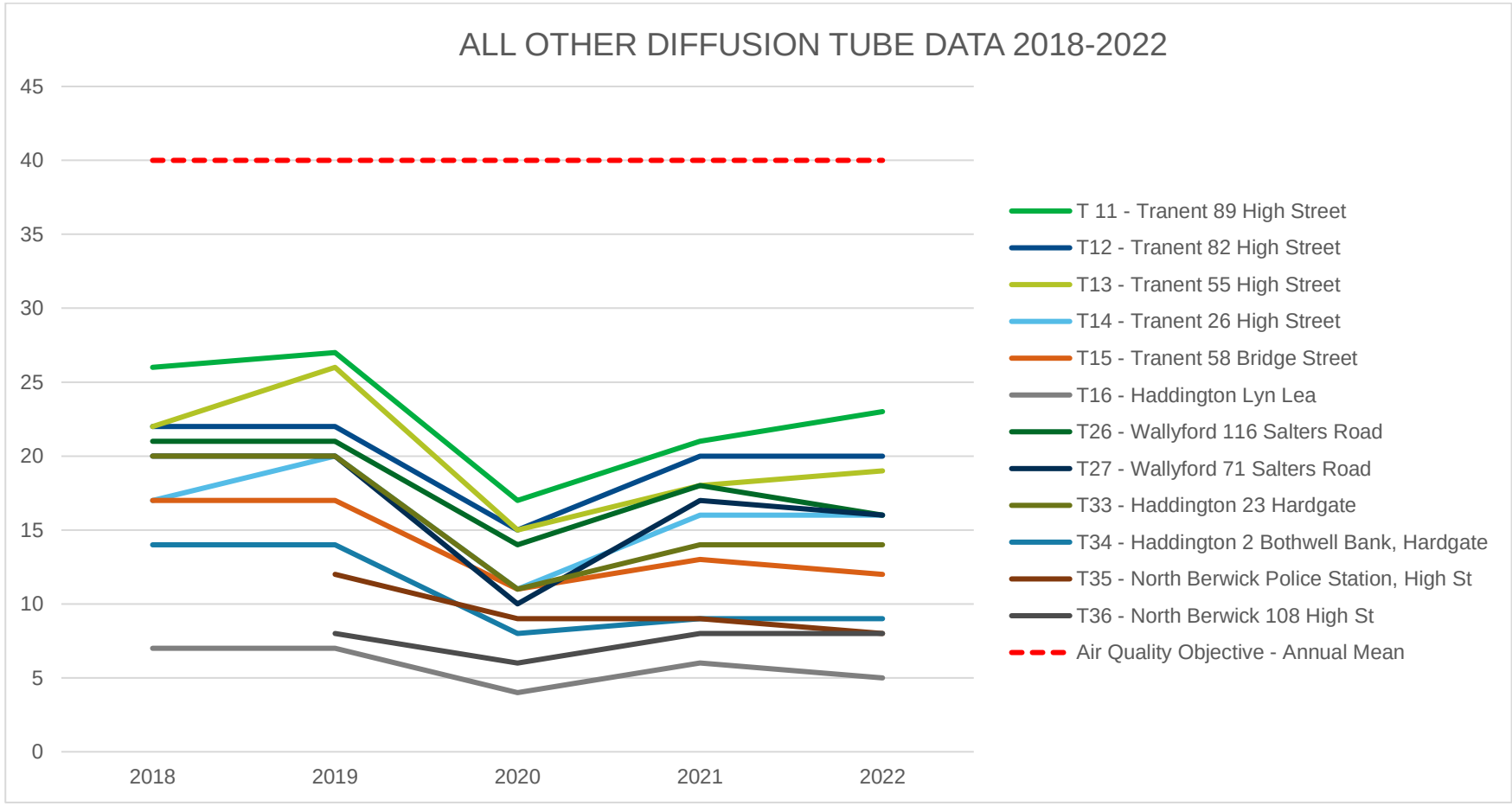


Figure 3: All other diffusion tubes 2018-2022



Particulate Matter (PM_{10})

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

Figure 4 below shows the trend for PM_{10} concentrations on Musselburgh North High Street 2018-2022. It can be seen that there has been no increase in annual mean PM_{10} concentrations since 2018 and there have been no exceedances of the Air Quality Objective.

Figure 4: PM_{10} concentrations on Musselburgh North High Street 2018-2022

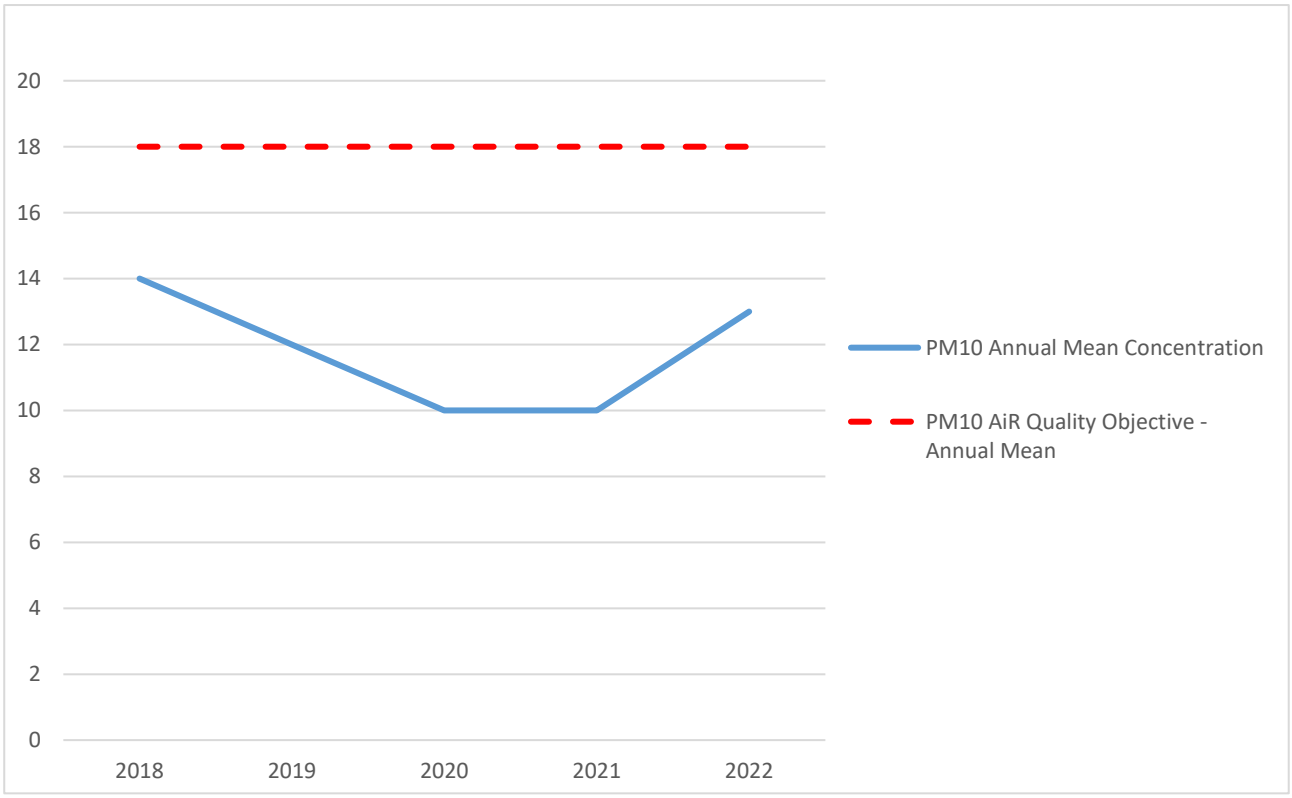


Table A.6 in Appendix A compares the ratified continuous monitored PM_{10} daily mean concentrations for the past five years with the air quality objective of 50µg/m^3, not to be exceeded more than seven times per year.

Although there was one exceedance of the of the PM_{10} Daily Mean during 2022, the AQO allows for up to seven exceedances during the year so there was no exceedance of the AQO.

Particulate Matter ($PM_{2.5}$)

East Lothian Council commenced monitoring of $PM_{2.5}$ in February 2022 using an ET BAM1020 Beta-attenuation PM2.5 particulate analyser. The new analyser meets equivalence criteria of the reference method for Particulates. Unfortunately, the existing Romon enclosure was overheating due to the presence of increased analysers within the unit and this has resulted in the loss of some data. However, funding was received from the Scottish Government for a replacement and larger PR5 Enclosure that addressed the overheating issue.

Tables A.7 and A.8 in Appendix A provides the ratified monitored $PM_{2.5}$ annual mean concentration for 2022. This indicates that the measured $PM_{2.5}$ concentrations of 7.4 µg/m^3 is below the annual mean objective of 10 µg/m^3. Although data capture for the calendar year was less than 75% it was not possible to annualise the data per Box 7-9 of LAQM Technical Guidance (TG22) due to the sporadic nature of the data losses.

Sulphur Dioxide (SO_2)

East Lothian Council do not currently monitor Sulphur dioxide (SO_2

Carbon Monoxide, Lead and 1,3-Butadiene

East Lothian Council do not currently monitor Carbon Monoxide, Lead or 1,3-Butadiene.

5 New Local Developments

5.1 Road Traffic Sources

East Lothian Council can confirm that there are no new:

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

since the 2022 Annual Progress Report.

5.2 Other Transport Sources

East Lothian Council can confirm that there are no new:

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

since the 2022 Annual Progress Report.

5.3 Industrial Sources

East Lothian Council can confirm that there are no new:

- **Industrial installations:** new or proposed installations for which an air quality assessment has been carried out.
- **Industrial installations:** new or significantly changed installations with no previous air quality assessment.
- Major fuel storage depots storing petrol.
- Petrol stations.
- Poultry farms.

since the 2022 Annual Progress Report.

5.4 Commercial and Domestic Sources

East Lothian Council can confirm that there are no new:

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

since the 2022 Annual Progress Report.

5.5 New Developments with Fugitive or Uncontrolled Sources

East Lothian Council can confirm that there are no new:

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

since the 2022 Annual Progress Report.

6 Planning Applications

East Lothian Council can confirm that there have been no new consented major developments that would require an Air Quality Assessment since the 2022 Annual Progress Report.

7 Conclusions and Proposed Actions

7.1 Conclusions from New Monitoring Data

Monitoring for the 12-month period from 01/01/22 to 31/12/22 indicates that there were no exceedances of any AQO's in East Lothian during 2022. Concentrations of Nitrogen dioxide within the AQMA are significantly below the Annual Mean Air Quality Objective of 40ug/m^3, with a maximum annual mean level of 31ug/m^3 recorded at T31 - 69 High Street, Musselburgh.

As there have been no exceedances of the Nitrogen dioxide Annual Mean AQO since 2016, East Lothian Council have carried out a Detailed Assessment of Air Quality in Musselburgh (Ref 14) and the results confirm that there were no exceedance's of any AQO within the AQMA since 2016. The Detailed Assessment also concluded that future exceedances are unlikely.

7.2 Conclusions relating to New Local Developments

No new local developments are anticipated to have significant impact in local air quality that could result in any future breach of AQO's.

7.3 Proposed Actions

This Report and monitoring results from 2022 confirm there were no exceedance's of any AQO during 2022 with the last exceedance being recorded in 2016.

Furthermore, the Detailed Assessment (Ref 14) confirms future exceedances of the Nitrogen Dioxide annual mean AQO are unlikely.

As such, East Lothian Council sought permission from the Scottish Government to revoke the Musselburgh AQMA, which was granted in December 2022. East Lothian Council are in the process of carrying out a consultation exercise with relevant stakeholders to seek their comments on the proposed revocation of the AQMA. A draft Revocation Report will be available to consultees as part of the revocation process. It is anticipated that the revocation of the AQMA will be completed by Autumn 2023.

East Lothian Council shall continue to implement measures outlined within the AQAP and also develop and publish policies that supplement CAFS2 throughout 2023 and beyond and will report progress, including monitoring of $PM_{2.5}$, in the Annual Progress Report due in June 2024.

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)
NO_X	Musselburgh North High Street - NO_x	Roadside	333 941	672837	NO_2	N	Gas-phase chemilluminescence detection	5	3	1.5
PM_{10}	Musselburgh North High Street -	Roadside	333 941	672837	PM_{10}	N	ET BAM1020 Beta-attenuation PM10 particulate analyser	5	3	1.5
$PM_{2.5}$	Musselburgh North High Street -	Roadside	333 941	672837	$PM_{2.5}$	N	ET BAM1020 Beta-attenuation PM2.5 particulate analyser	5	3	1.5

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?
T1	Musselburgh – Newbigging Junction	Roadside	334659	672720	NO_2	Y	Y (15m)	2m	N
T4	Musselburgh - 87 High St	Roadside	334526	672700	NO_2	Y	Y (15m)	4m	N
T6	Musselburgh – 147 High Street	Roadside	334392	672652	NO_2	Y	Y 20m)	3m	N
T7	Musselburgh – 183 High St	Roadside	334301	672632	NO_2	Y	Y 20m)	3m	N
T8	Musselburgh - Mall Av	Roadside	334172	672524	NO_2	N	Y (25m)	4m	N
T9	Musselburgh – 45 Bridge Street	Roadside	334105	672750	NO_2	N	Y (3m)	4m	N
T10	Musselburgh – 150 North High St	Roadside	333800	672822	NO_2	N	Y (3m)	4m	N
T11	Tranent – 89 High St	Roadside	340686	672692	NO_2	N	Y (3m)	3m	N
T12	Tranent – 82 High St	Roadside	340738	672687	NO_2	N	Y (4m)	3m	N
T13	Tranent – 55 High Street	Roadside	340608	672738	NO_2	N	Y (4m)	3m	N
T14	Tranent – 26 High St	Roadside	340570	672780	NO_2	N	Y (2m)	2m	N
T15	Tranent – 58 Bridge St	Roadside	340112	672905	NO_2	N	Y (5m)	2m	N
T16	Haddington - Lyn Lea	Urban	352249	673631	NO_2	N	Y 8m)	3m	N
T23	Musselburgh - Co-located 133 N High St	Roadside	333941	672837	NO_2	N	Y (5m)	3m	Y
T24	Musselburgh - Co-located 133 N High St	Roadside	333941	672837	NO_2	N	Y (5m)	3m	Y
T25	Musselburgh - Co-located 133 N High St	Roadside	333941	672837	NO_2	N	Y (5m)	3m	Y
T26	Wallyford - 116 Salters Rd	Roadside	336691	672055	NO_2	N	Y (5m)	2m	N
T27	Wallyford - 71 Salters Rd	Roadside	336769	672127	NO_2	N	Y (5m)	2m	N
T28	Musselburgh - 15 Bridge Street	Roadside	334164	672708	NO_2	N	Y (5m)	3m	N
T29	Musselburgh - 167 High Street	Roadside	334354	672643	NO_2	Y	Y (5m)	3m	N
T30	Musselburgh - 137 High Street	Roadside	334427	672664	NO_2	Y	Y (5m)	3m	N
T31	Musselburgh - 69 High Street	Roadside	334580	672713	NO_2	Y	Y (5m)	3m	N
T32	Musselburgh - 86 High Street	Roadside	334578	672695	NO_2	Y	Y (5m)	3m	N
T33	Haddington – 23 Hardgate	Roadside	351693	673998	NO_2	N	Y (5m)	2m	N
T34	Haddington – 2 Bothwell Bank, Hardgate	Roadside	351702	674034	NO_2	N	Y (5m)	2m	N
T35	North Berwick – Police Station High St	Roadside	355339	685307	NO_2	N	Y (5m)	2m	N
T36	North Berwick – 108 High Street	Roadside	355186	685277	NO_2	N	Y (5m)	2m	N

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

Site ID	Site Type	Monitoring Type	Valid Data Capture for Monitoring Period (%)	Valid Data Capture 2022 (%)	NO_2 Annual Mean Concentration (µg/m^3)				
					2018	2019	2020	2021	2022
NO_x	Roadside	Automatic	96	96	20	20	15	16	20.1
T1	Roadside	Passive Diffusion Tube	100	100	29	24	16	19	16.5
T4	Roadside	Passive Diffusion Tube	100	100	23	20	13	19	24.3
T6	Roadside	Passive Diffusion Tube	100	100	30	32	19	26	24.4
T7	Roadside	Passive Diffusion Tube	100	100	30	30	19	25	19.8
T8	Roadside	Passive Diffusion Tube	100	100	23	20	14	20	15.3
T9	Roadside	Passive Diffusion Tube	100	100	22	23	12	19	16.9
T10	Roadside	Passive Diffusion Tube	100	100	28	26	19	21	23.7
T11	Roadside	Passive Diffusion Tube	100	100	26	27	17	23	20.7
T12	Roadside	Passive Diffusion Tube	100	100	22	22	15	21	19.6
T13	Roadside	Passive Diffusion Tube	100	100	22	26	15	20	16.1
T14	Roadside	Passive Diffusion Tube	100	100	17	20	11	17	12.6
T15	Roadside	Passive Diffusion Tube	100	100	17	17	11	14	5.2
T16	Urban	Passive Diffusion Tube	100	100	7	7	4	6	-
T23	Roadside	Passive Diffusion Tube	100	100	19	20	11	16	-
T24	Roadside	Passive Diffusion Tube	100	100	19	20	11	17	14.1
T25	Roadside	Passive Diffusion Tube	100	100	20	20	11	18	16.2
T26	Roadside	Passive Diffusion Tube	100	100	21	21	14	19	16.2
T27	Roadside	Passive Diffusion Tube	100	100	20	20	10	18	17.0
T28	Roadside	Passive Diffusion Tube	100	100	22	21	12	19	26.4
T29	Roadside	Passive Diffusion Tube	100	100	30	31	19	28	19.0
T30	Roadside	Passive Diffusion Tube	100	100	25	22	15	21	31.1
T31	Roadside	Passive Diffusion Tube	100	100	34	32	18	30	21.4
T32	Roadside	Passive Diffusion Tube	100	100	26	31	27	23	14.1
T33	Roadside	Passive Diffusion Tube	100	100	20	20	11	15	8.9
T34	Roadside	Passive Diffusion Tube	100	100	14	14	8	10	7.5
T35	Roadside	Passive Diffusion Tube	100	100	-	12	9	9	7.9
T36	Roadside	Passive Diffusion Tube	100	100	-	8	6	9	20.1

Notes:

Exceedances of the NO_2 annual mean objective of 40µg/m^3 are shown in bold.

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

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

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

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

Table A.4 – 1-Hour Mean NO_2 Monitoring Results, Number of 1-Hour Means > 200µg/m^3

Site ID	Site Type	Monitoring Type	Valid Data Capture for Monitoring Period (%) (1)	Valid Data Capture 2022 (%) (2)	NO_2 1-Hour Means > 200µg/m^3 (3)				
					2018	2019	2020	2021	2022
NO_X	Roadside	Automatic	96.4	96.4	0	0	0	0	0

Notes:

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

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

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

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

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

Site ID	Site Type	Valid Data Capture for Monitoring Period (%)	Valid Data Capture 2022 (%)	PM_{10} Annual Mean Concentration ($\mu g/m^3$)				
				2018	2019	2020	2021	2022
PM_{10}	Roadside	79	79	14	12	10	10	13

Notes:

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

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

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

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

Table A.6 – 24-Hour Mean PM_{10} Monitoring Results, Number of PM_{10} 24-Hour Means > 50µg/m^3

Site ID	Site Type	Valid Data Capture for Monitoring Period (%)	Valid Data Capture 2022 (%)	PM_{10} 24-Hour Means > 50µg/m^3 (3)				
				2018	2019	2020(2)	2021	2022
PM_{10}	Roadside	79	79	0	1	0 (23.2)	0	1(29.4)

Notes:

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

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

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

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

Table A.7 – Annual Mean $PM_{2.5}$ Monitoring Results ($\mu g/m^3$)

Site ID	Site Type	Valid Data Capture for Monitoring Period (%) (1)	Valid Data Capture 2022 (%) (2)	2018	2019	2020	2021	2022
$PM_{2.5}$	Roadside	75	60	N/A	N/A	N/A	N/A	7.4

Notes:

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

Due to sporadic nature of data losses during 2022 it is not possible to annualise the PM2.5 date per Box Table 7-9 LAQM.TG(22), but it must be noted that valid data capture for the full calendar year is less than 75%.

Table A.8 – Monthly Statistics for $PM_{2.5}$

Monthly Statistics (monthly averages) for 2022

The monthly data below are average concentration data, followed by data capture rates (shown as a percentage of each month).

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
		13.2	8.1	5.2	6.4	-	5.3	7.3	6.6	6.4	7.4
		89%	34%	100%	96%	-	40%	100%	84%	100%	77%

Appendix B: Full Monthly Diffusion Tube Results for 2022

Table B.1 – NO_2 2022 Monthly Diffusion Tube Results (µg/m^3)

Site ID	Location	05/01/22 – 04/01/2023												Raw Date	Data Capture %	BIAS ADJUSTED (0.91 local)
		Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec			
1	Musselburgh – Newbigging Junction	22	27	29	20	16	18	18	24	20	21	26	24	22	100	20.1
4	Musselburgh - 87 High St	25	16	26	11	14	14	14	14	13	21	25	25	18	100	16.5
6	Musselburgh – 147 High Street	25	22	37	31	27	21	24	23	26	25	29	30	27	100	24.3
7	Musselburgh – 183 High St	23	26	41	36	27	23	24	27	25	29	6	35	27	100	24.4
8	Musselburgh - Mall Av	19	19	31	21	18	16	15	17	17	24	32	32	22	100	19.8
9	Musselburgh – 45 Bridge Street	14	13	30	19	15	11	14	17	17	19	26	7	17	100	15.3
10	Musselburgh – 150 North High St	21	19	30	15	3	15	16	16	21	21	17	29	19	100	16.9
11	Tranent – 89 High St	25	26	31	24	24	23	19	24	20	26	32	38	26	100	23.7
12	Tranent – 82 High St	18	16	34	31	23	14	18	24	23	16	31	25	23	100	20.7
13	Tranent – 55 High Street	15	18	25	22	17	19	19	22	22	19	28	32	22	100	19.6
14	Tranent – 26 High St	8	12	28	25	16	11	15	19	23	13	18	24	19	100	16.1
15	Tranent – 58 Bridge St	12	12	23	13	11	11	11	15	12	13	16	17	14	100	12.6
16	Haddington - Lyn Lea	7	4	10	6	6	3	5	5	3	3	7	10	6	100	5.2
23	Musselburgh - 133 N High St	14	18	23	17	12	9	12	13	14	13	20	21	16	100	-
24	Musselburgh - 133 N High St	12	14	27	15	14	11	13	17	14	13	20	19	16	100	-
25	Musselburgh - 133 N High St	12	15	27	16	13	10	13	14	13	16	21	27	15	100	14.1
26	Wallyford - 116 Salters Rd	17	16	28	16	15	14	14	17	17	17	18	24	18	100	16.2
27	Wallyford - 71 Salters Rd	15	15	38	18	15	12	13	16	15	17	19	20	18	100	16.2
*28	Musselburgh - 15 Bridge Street	14	21	34	22	15	11	13	15	17	18	21	23	19	100	17.0
*29	Musselburgh - 167 High Street	28	25	40	36	27	21	25	29	28	28	29	32	29	100	26.4
*30	Musselburgh - 137 High Street	19	14	29	23	16	14	17	17	18	19	21	44	21	100	19.0
*31	Musselburgh - 69 High Street	30	35	42	38	28	27	27	31	33	32	26	61	35	100	31.1
*32	Musselburgh - 86 High Street	23	20	34	21	19	18	17	20	19	25	32	34	24	100	21.4
33	Haddington - 23 Hardgate	18	15	21	15	14	12	13	13	10	15	17	23	15	100	14.1
34	Haddington - 2 Bothwell Bank, Hardgate	8	6	16	9	7	6	9	10	7	9	14	16	10	100	8.9
35	North Berwick - Police Station High Street	7	9	11	8	8	6	8	8	6	6	10	12	8	100	7.5
36	North Berwick - 108 High Street	7	9	11	10	8	7	10	10	8	5	7	12	9	100	7.9

Notes:

(1) See Appendix C for details on bias adjustment

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

New or Changed Sources Identified Within East Lothian During 2022

East Lothian Council has not identified any new sources relating to air quality within the reporting year of 2022.

Additional Air Quality Works Undertaken by East Lothian Council During 2022

East Lothian Council commissioned SWECO Consultants to carry out a Detailed Assessment of current and future Air Quality within the Musselburgh AQMA (Ref 14) to determine whether or not future exceedances of the NO_2 Annual Mean AQO would be likely to occur. The study assessed the likely impacts of the introduction of the Edinburgh LEZ and also future build-out of development sites included within the East Lothian Local Development Plan (Ref 22). The Report was published in September 2022 and submitted to the Scottish Government and SEPA for approval.

The Report concluded that future exceedances of the NO_2 Annual Mean AQO will be unlikely and recommended that East Lothian Council commence proceedings to revoke the AQMA. Both SEPA and The Scottish Government accepted the conclusions and recommendations within the report and East Lothian Council are now in the process of revoking the AQMA with the process completed during Autumn 2023.

QA/QC of Diffusion Tube Monitoring

Diffusion Tubes for East Lothian Council were analysed during 2022 by Edinburgh Scientific Services. The method of preparation is 50% TEA in acetone.

The monitoring has been completed in adherence with the 2022 Diffusion Tube Monitoring Calendar.

An example test report is shown below.

·EDINBVRGH·
THE CITY OF EDINBURGH COUNCIL

Public Health & Protection
East Lothian Council
Council Offices
Haddington
EH41 3HA

For the attention of: Lynn Crothers

Date of Issue: 1 September 2023

The sampling tubes were not exposed by this laboratory and the concentration in air was calculated using exposure times stated by the sampling officer.

REPORT OF NITROGEN DIOXIDE ANALYSIS OF PASSIVE DIFFUSION TUBES

Received from East Lothian Council on 08/08/2023 Submitted by Luke Anstock

Laboratory Reference	Client's Reference	Sampling point	Exposure start date	Exposure end date	Nitrogen dioxide in tube (µg//L)	* Nitrogen dioxide in air(µg/m3)
50581863	1	Muss - Newbigging	05/07/2023	01/08/2023	0.788	16.9
50581864	4	Muss - 87 High St	05/07/2023	01/08/2023	0.589	12.7
50581865	6	Muss - 147 High St	05/07/2023	01/08/2023	1.170	25.2
50581866	7	Muss - 183 High St	05/07/2023	01/08/2023	1.106	23.8
50581867	8	Muss - Mall Av	05/07/2023	01/08/2023	0.685	14.7
50581868	9	Muss - 45 Bridge St	05/07/2023	01/08/2023	0.759	16.3
50581869	10	Muss - 150 North High St	05/07/2023	01/08/2023	0.877	18.9
50581870	11	Tranent - 89 High St	05/07/2023	01/08/2023	0.686	14.7
50581871	12	Tranent - 82 High St (Crolla's)	05/07/2023	01/08/2023	0.779	16.8
50581872	13	Tranent - 55 High St	05/07/2023	01/08/2023	0.621	13.3
50581873	14	Tranent - 26 High St (P.O)	05/07/2023	01/08/2023	0.332	7.1
50581874	15	Tranent - 58 Bridge St	05/07/2023	01/08/2023	0.459	9.9
50581875	16	Haddington - Lynn Lea	05/07/2023	01/08/2023	0.163	3.5
50581876	23	Muss - Co-located 133 N High St	05/07/2023	01/08/2023	0.315	6.8
50581877	24	Muss - Co-located 133 N High St	05/07/2023	01/08/2023	0.544	11.7
50581878	25	Muss - Co-located 133 N High St	05/07/2023	01/08/2023	0.501	10.8
50581879	26	Wallyford - 116 Salters Rd	05/07/2023	01/08/2023	0.555	11.9
50581880	27	Wallyford - 71 Salters Rd	05/07/2023	01/08/2023	0.468	10.1
50581881	28	Muss - 15 Bridge Strreet	05/07/2023	01/08/2023	0.651	14.0

UKAS TESTING 1005

Edinburgh Scientific Services
4 Marine Esplanade, Edinburgh EH6 7LU Tel 0131 555 7980

REPORT OF NITROGEN DIOXIDE ANALYSIS OF PASSIVE DIFFUSION TUBES

Received from East Lothian Council on 08/08/2023 Submitted by Luke Anstock

Laboratory Reference	Client's Reference	Sampling point	Exposure start date	Exposure end date	Nitrogen dioxide in tube (mg/L)	* Nitrogen dioxide in air (µg/m3)
50581882	29	Muss - 167 High Street	05/07/2023	01/08/2023	1.125	24.2
50581883	30	MISSING TUBE Muss - 137 High Street	05/07/2023	01/08/2023	-	-
50581884	31	Muss - 69 High Street	05/07/2023	01/08/2023	1.232	26.5
50581885	32	Muss - 86 High Street	05/07/2023	01/08/2023	0.894	19.2
50581886	33	Haddington - 23 Hardgate	05/07/2023	01/08/2023	0.456	9.8
50581887	34	Haddington - 2 Bothwell Bank, Hardgate	05/07/2023	01/08/2023	0.343	7.4
50581888	35	North Berwick - Police Station, High St	05/07/2023	01/08/2023	0.272	5.8
50581889	36	North Berwick - 108 High Street	05/07/2023	01/08/2023	0.358	7.7

Signed:

Charles Veitch: Team Leader/ Technical Manager

The sample was examined under my direction, according to documented standard and in-house methods (Note 2) , details of which are available on request.

This laboratory is accredited in accordance with the recognised International Standard ISO/IEC 17025. This accreditation demonstrates technical competence for a defined scope and the operation of a laboratory quality management system (refer joint ISO-ILAC-IAF communiqué dated April 2017).

Notes:
1. No liability can be accepted for information given by customer
2. Non-accrediatied tests are indicated by "*"
3. Subcontracted tests are indicated by "#"
4. This report must not be reproduced except in full without written approval of the laboratory
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Diffusion Tube Annualisation

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

Diffusion Tube Bias Adjustment Factors

East Lothian Council have applied a local bias adjustment factor of 0.91 to the 2022 monitoring data. A summary of bias adjustment factors used by East Lothian Council over the past five years is presented in Table C.1.

East Lothian Council applied a local bias adjustment factor as calculated using the Diffusion Tube Data Processing Tool v3.0.xlsb on the DEFRA website. The triplicate Tubes 23, 24 and 25 are co-located with the automatic analyser at the Musselburgh monitoring site. Data inputs used in the calculation of the bias adjustment factor are shown in Table C.2

Table C.1 – Bias Adjustment Factor

Year	Local or National	If National, Version of National Spreadsheet	Adjustment Factor
2022	Local	-	0.91
2021	Local	-	1.0
2020	National	09/19	0.88
2019	Local	-	0.9
2018	National	09/19	0.9

NO_2 Fall-off with Distance from the Road

No diffusion tube NO_2 monitoring locations within East Lothian required distance correction during 2022.

QA/QC of Automatic Monitoring

Data Management of the automatic monitoring sites is carried out by Ricardo Energy and Environment on behalf of the Scottish Government. Local Site Operator (LSO) duties are carried out by East Lothian Council.

- LSO Calibrations are carried out in line with the 2022 Diffusion Tube Monitoring Calendar.
- Data is ratified by Ricardo Energy and Environment on behalf of the Scottish Government. All data provided in this report has been ratified and a summary of all ratified data for 2022 is available here Scottish Air Quality Database Annual Report
- Live data is available at Home page | Scottish Air Quality.

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

The type of PM_{10}/$PM_{2.5}$ monitors utilised within East Lothian do not required the application of a correction factor.

Automatic Monitoring Annualisation

The NO_2 and PM_{10} monitoring locations within East Lothian recorded data capture of greater than 75% therefore it was not required to annualise this monitoring data. However, $PM_{2.5}$ data capture for the calendar year was less than 75% at only 60% and the data should be annualised per Box 7-9 of LAQM Technical Guidance (TG22). However, it has not been possible to annualise the PM2,5 data per LAQM (TG22) due to the sporadic nature of the data losses.

NO_2 Fall-off with Distance from the Road

No automatic NO_2 monitoring locations within East Lothian required distance correction during 2022.

Tables C.2 – Local Bias Adjustment Calculations

Local Bias Adjustment 1

Enter data into the pink cells

i) Enter co-located diffusion tube period means

Period	NO_2 Period Mean (µg/m³)			Triplicate Mean	Standard Deviation	Coefficient of Variation (CV)	95% CI of Mean	Data Quality Check
	Tube 1	Tube 2	Tube 3					
1	14.0	12.0	12.0	12.7	1.2	9%	2.9	Good
2	18.0	14.0	15.0	15.7	2.1	13%	5.2	Good
3	23.0	27.0	27.0	25.7	2.3	9%	5.7	Good
4	17.0	15.0	16.0	16.0	1.0	6%	2.5	Good
5	12.0	14.0	13.0	13.0	1.0	8%	2.5	Good
6	9.0	11.0	10.0	10.0	1.0	10%	2.5	Good
7	12.0	13.0	13.0	12.7	0.6	5%	1.4	Good
8	13.0	17.0	14.0	14.7	2.1	14%	5.2	Good
9	14.0	14.0	13.0	13.7	0.6	4%	1.4	Good
10	13.0	13.0	16.0	14.0	1.7	12%	4.3	Good
11	20.0	20.0	21.0	20.3	0.6	3%	1.4	Good
12	21.0	19.0	27.0	22.3	4.2	19%	10.3	Good
								Good Overall Precision

ii) Enter co-located continuous monitor hourly monitoring data

Start Date	*05/01/2022*
Start Time	*00:00*

Date & Time	NO_2 Hourly Concentrations (µg/m³)
05/01/22 00:00	5
05/01/22 01:00	8.7
05/01/22 02:00	10.3
05/01/22 03:00	7.1
05/01/22 04:00	7.9
05/01/22 05:00	12.4
05/01/22 06:00	8.4
05/01/22 07:00	14.4
05/01/22 08:00	18.7
05/01/22 09:00	16.2

Period	Period Mean	Data Capture (%)	Data Quality Check
1	15.7	100.0%	Good
2	12.0	100.0%	Good
3	21.8	100.0%	Good
4	15.8	100.0%	Good
5	10.7	100.0%	Good
6	7.4	100.0%	Good
7	8.7	100.0%	Good
8	12.0	100.0%	Good
9	10.4	100.0%	Good
10	15.3	100.0%	Good
11	24.5	100.0%	Good
12	19.9	100.0%	Good
			Good Overall Data Capture

Local Bias Adjustment Outputs - Information Only

Go back to STEP 3 - Bias Adjustment to define factor

	STEP 3a Local Bias Adjustment Input 1	STEP 3b Local Bias Adjustment Input 2	STEP 3c Local Bias Adjustment Input 3	STEP 3d Local Bias Adjustment Input 4	STEP 3e Local Bias Adjustment Input 5	STEP 3f Local Bias Adjustment Input 6	STEP 3g Local Bias Adjustment Input 7
Periods used to calculate bias	12						
Bias Adjustment Factor A	0.91 (0.81 - 1.04)						
Diffusion Tube Bias B	9% (-4% - 23%)						
Diffusion Tube Mean (µg/m^3)	15.9						
Mean CV (Precision)	9.3%						
Automatic Mean (µg/m^3)	14.5						
Data Capture	100%						
Adjusted Tube Mean (µg/m^3)	14 (13 - 17)						
Overall Diffusion Tube Precision	Good Overall Precision						
Overall Continuous Monitor Data Capture	Good Overall Data Capture						
Local Bias Adjustment Factor	0.91						

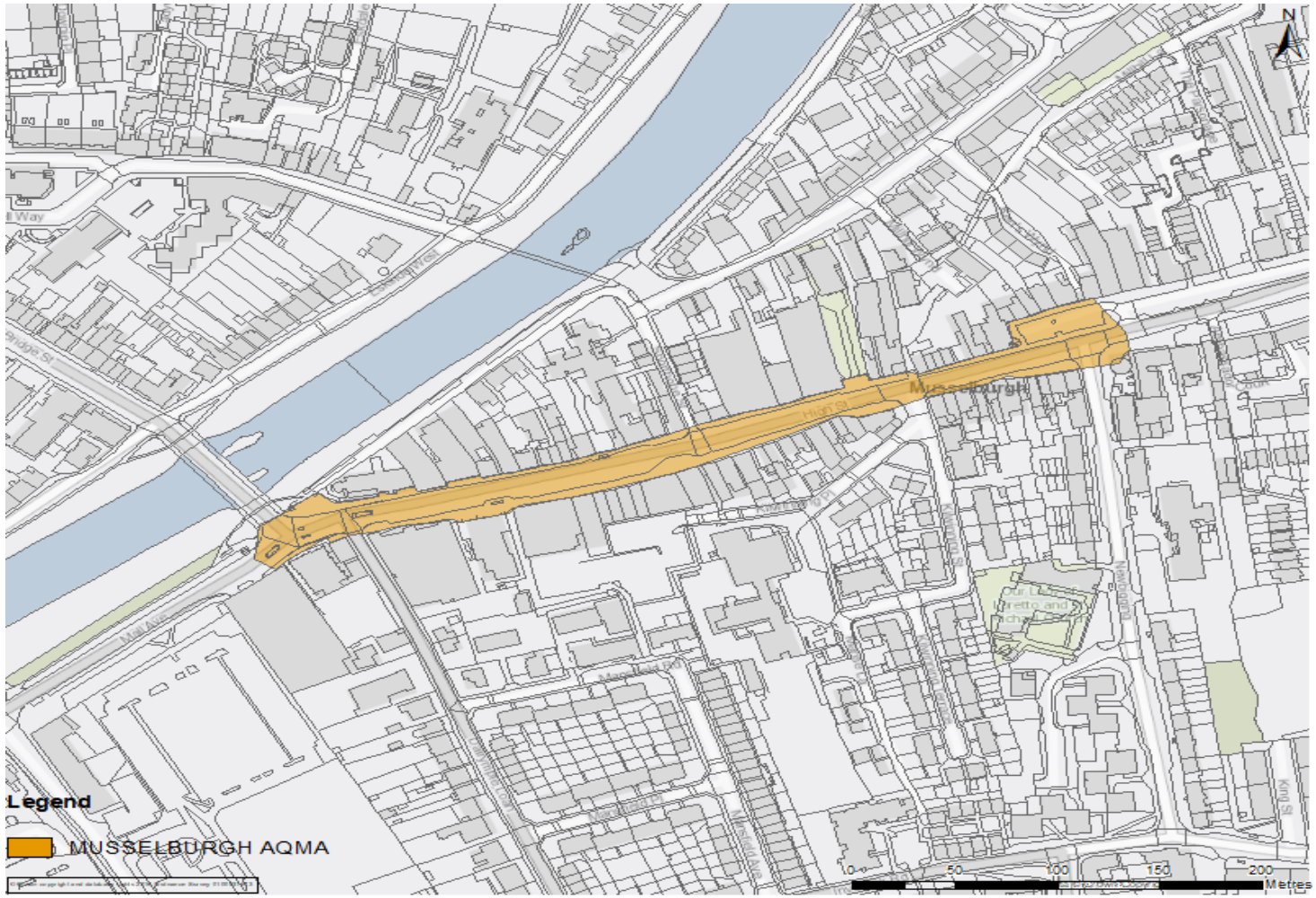
	Local Bias Adjustment Input 1	Local Bias Adjustment Input 2	Local Bias Adjustment Input 3	Local Bias Adjustment Input 4	Local Bias Adjustment Input 5
Periods used to calculate bias	12				
Bias Factor A	0.91 (0.81 - 1.04)				
Bias Factor B	9% (-4% - 23%)				
Diffusion Tube Mean (µg/m^3)	15.9				
Mean CV (Precision)	9.3%				
Automatic Mean (µg/m^3)	14.5				
Data Capture	100%				
Adjusted Tube Mean (µg/m^3)	14 (13 - 17)				

Notes:

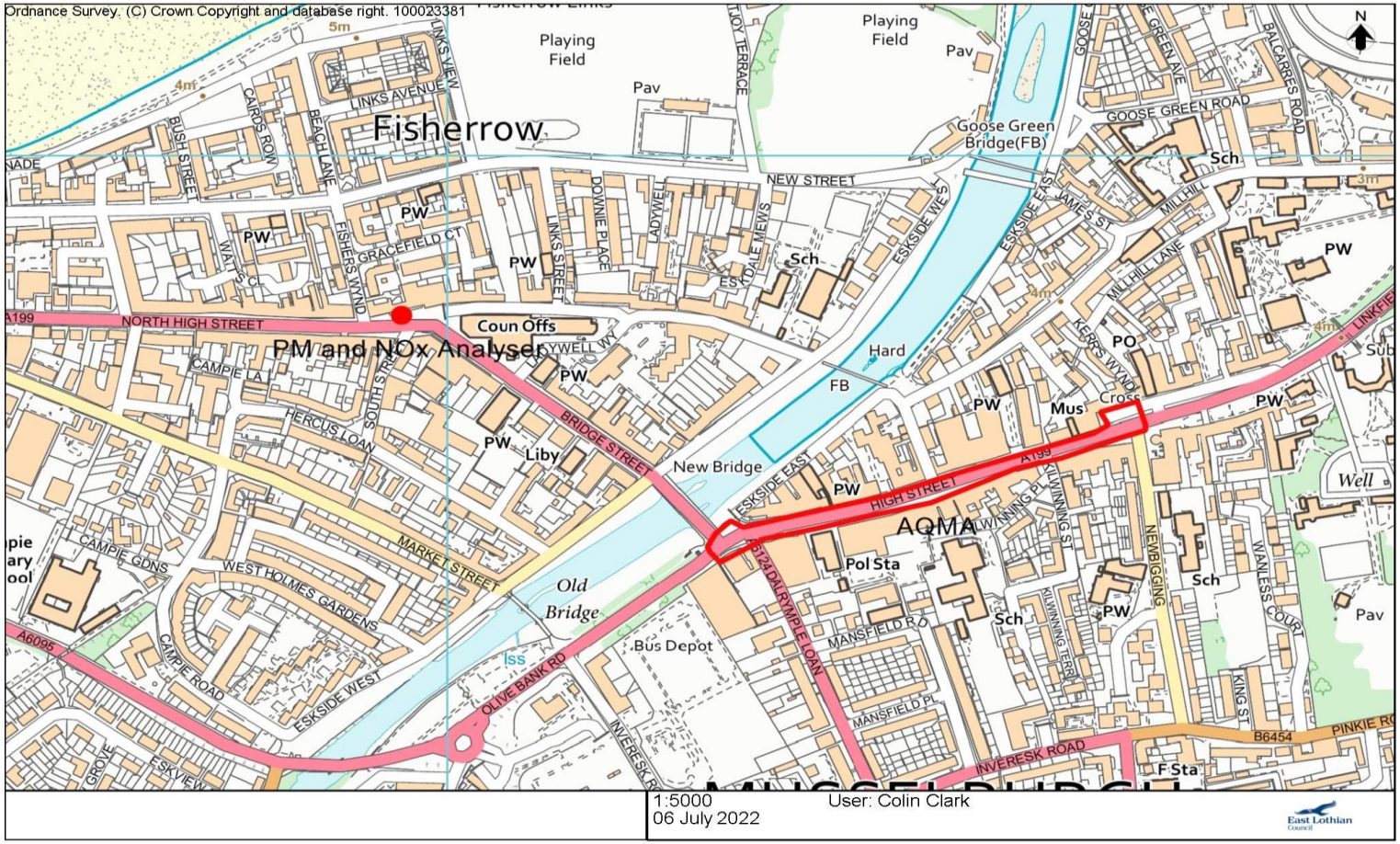
A single local bias adjustment factor has been used to bias adjust the 2022 diffusion tube results.

Appendix D: Maps

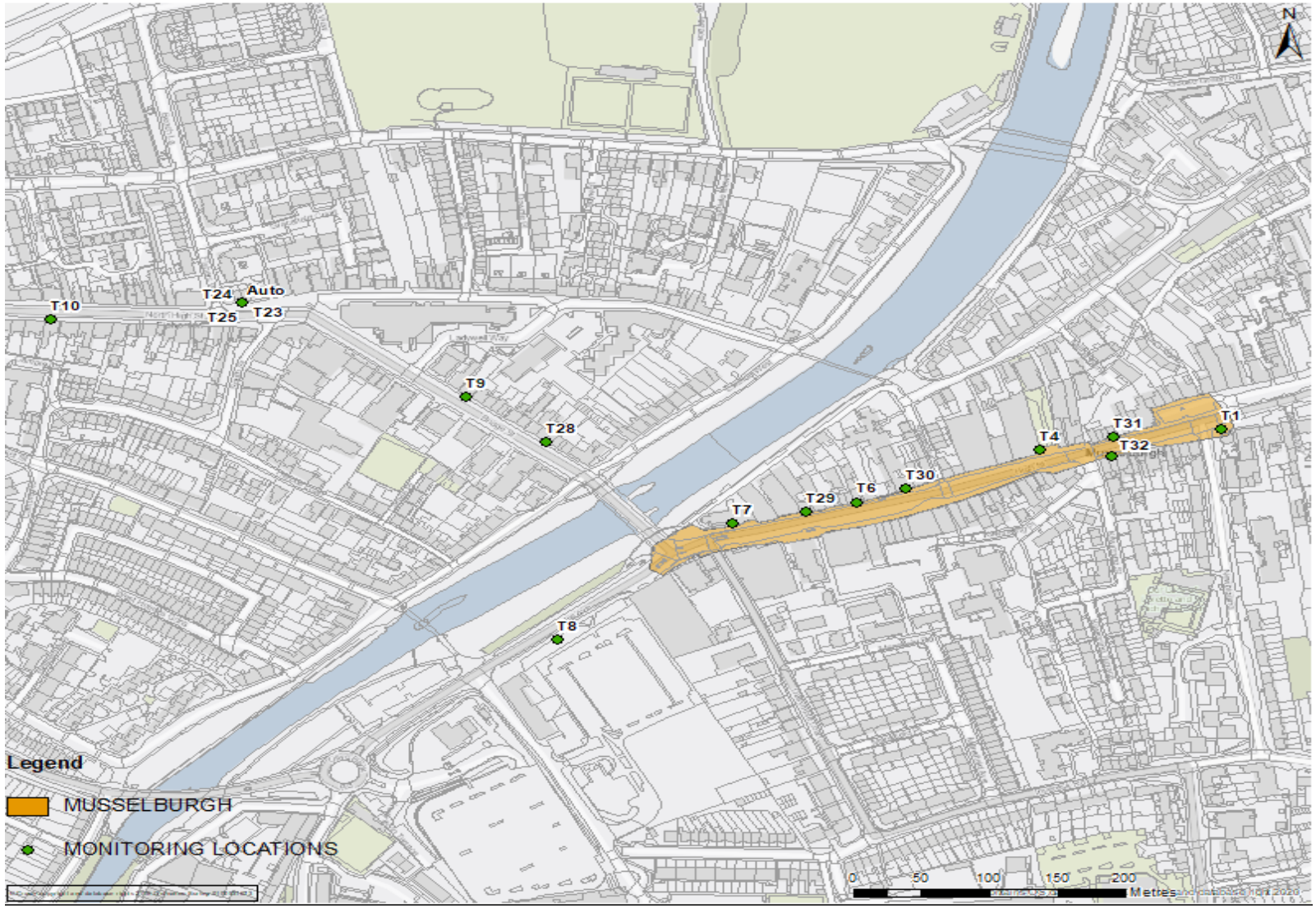
Map of AQMA in Musselburgh



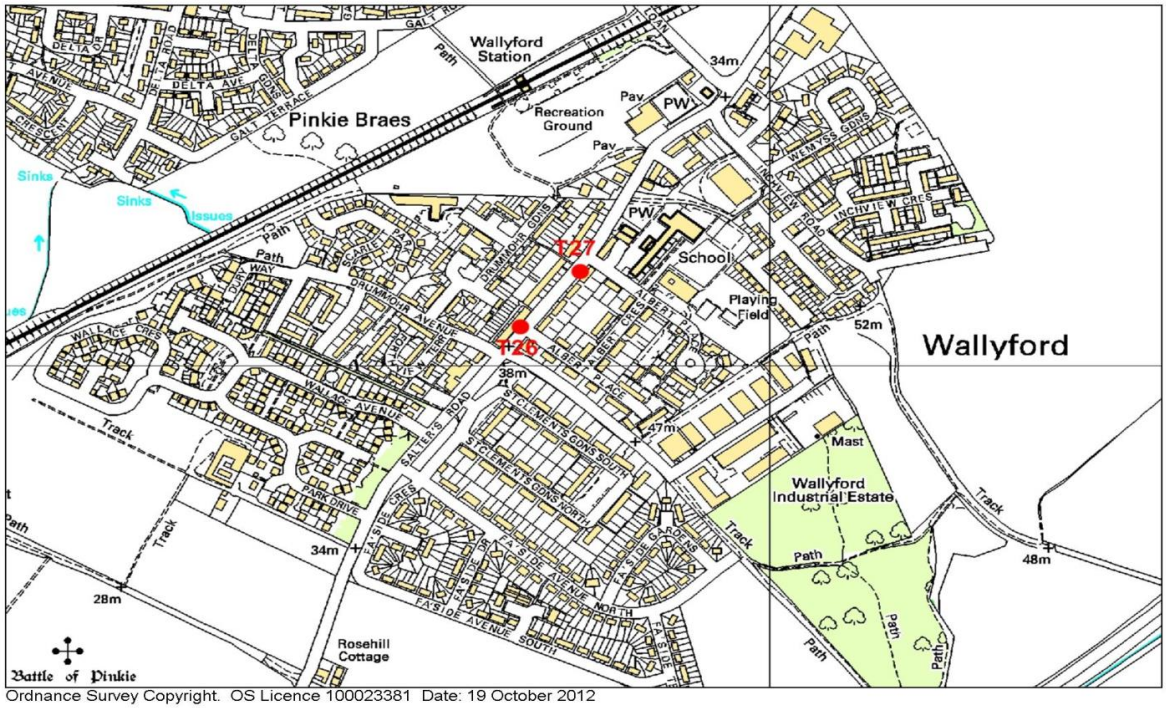
Map of Automatic Monitoring Site in Musselburgh



Map of Non-Automatic Monitoring Sites in Musselburgh

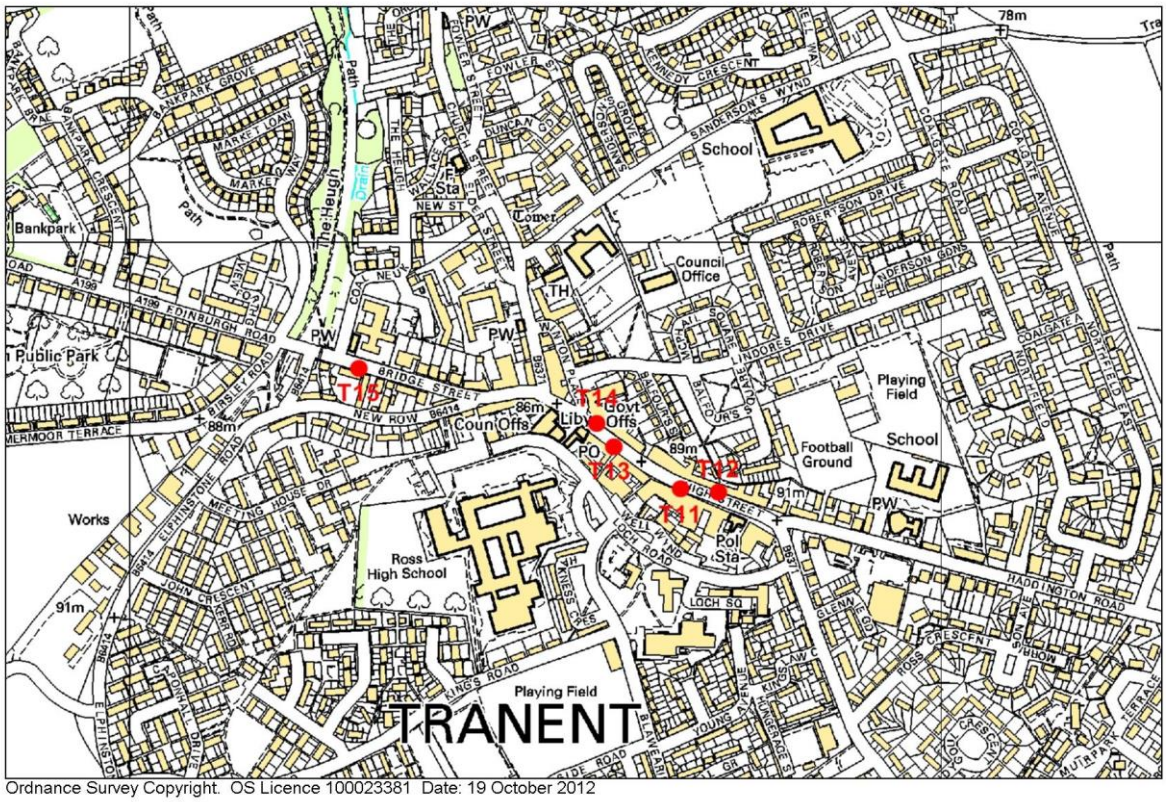


Map of Non-Automatic Monitoring Sites in Wallyford



Ordnance Survey Copyright. OS Licence 100023381 Date: 19 October 2012

Map of Non-Automatic Monitoring Sites in Tranent



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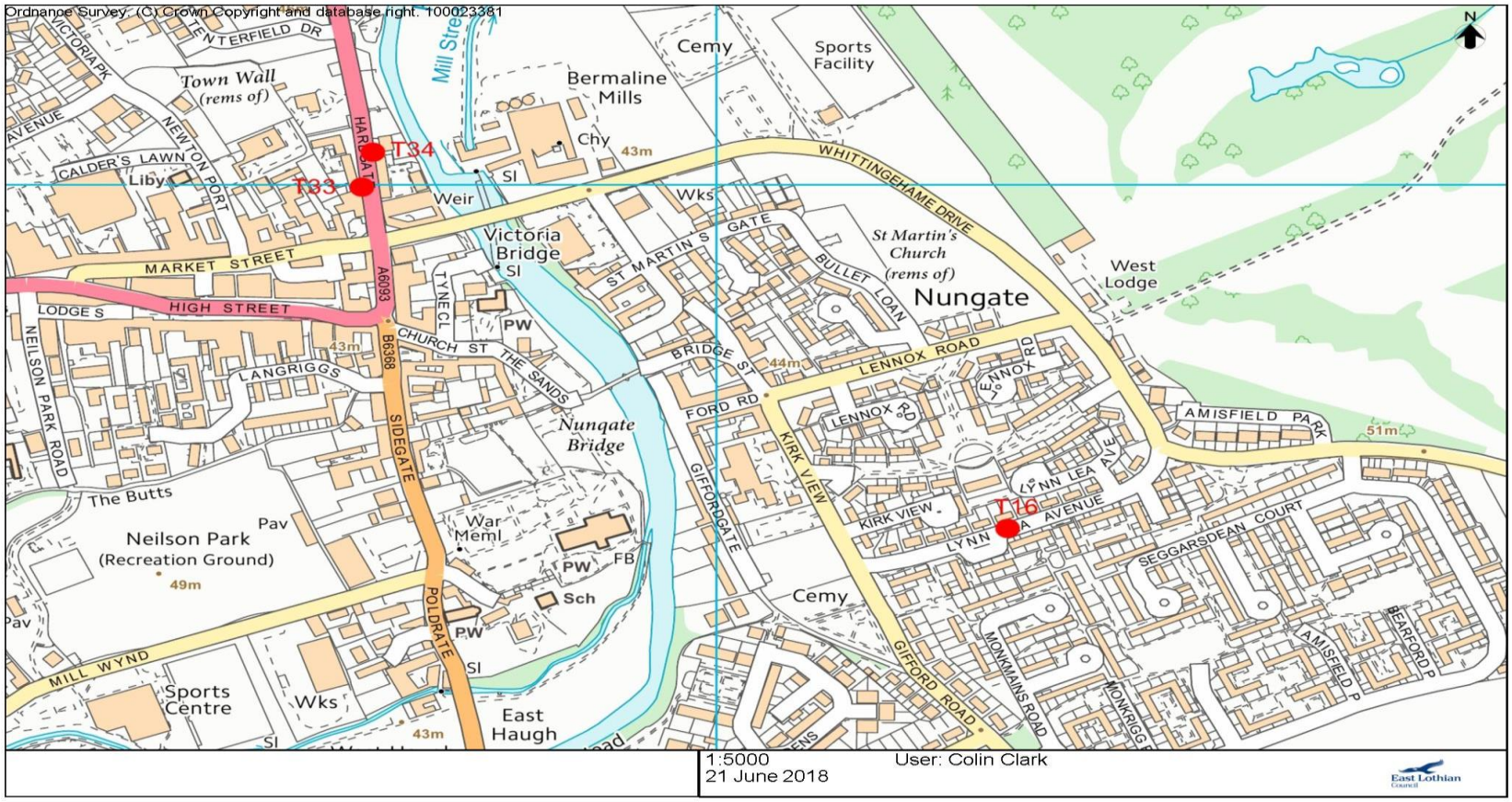
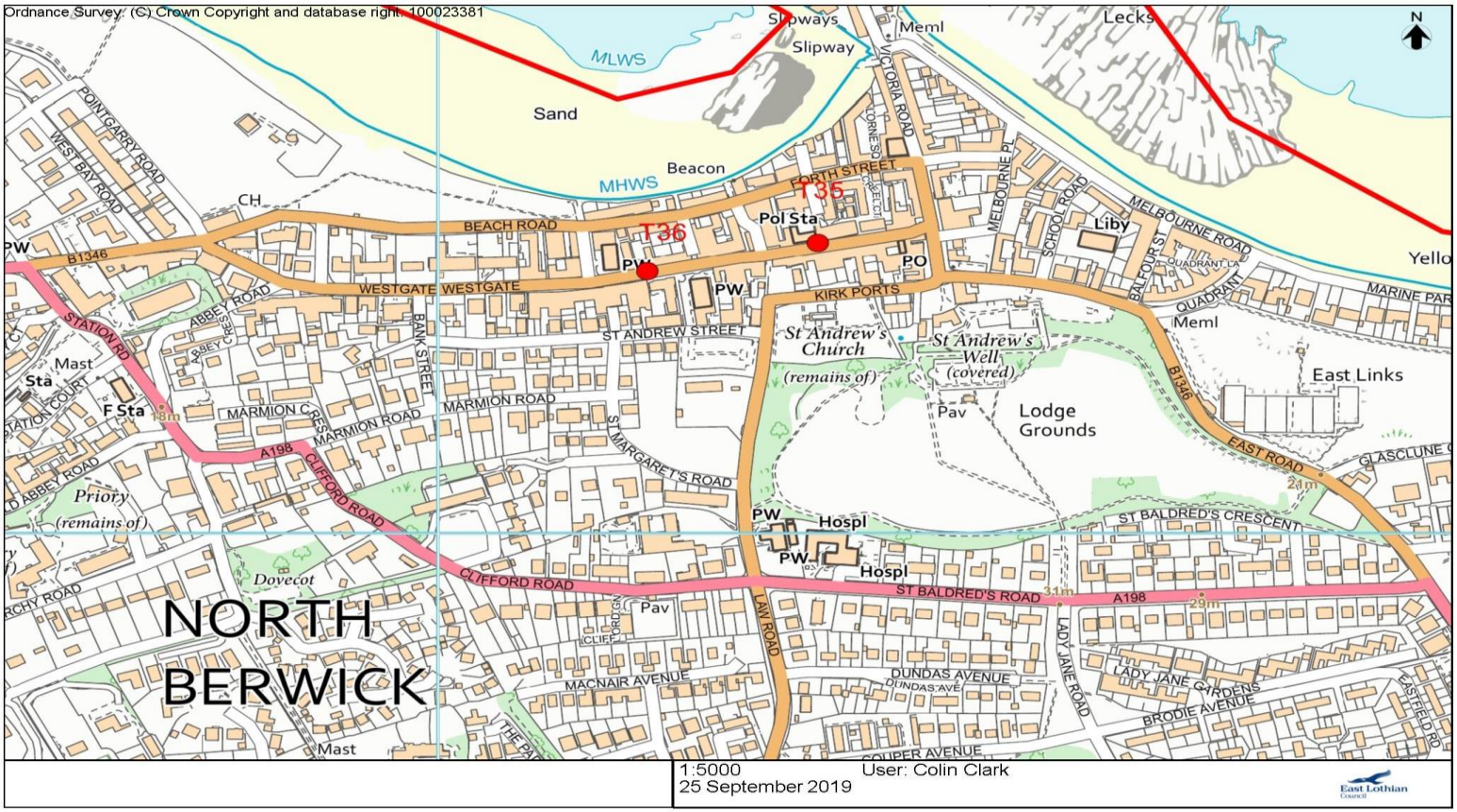
Map of Non-Automatic Monitoring Sites in Haddington



Map of Non-Automatic Monitoring Sites in North Berwick



Appendix E: Summary of Previous Rounds of Review and Assessment

Summary of Previous Review and Assessment Reports				
ROUND	**REPORT TYPE**	**REPORT DUE DATE**	**REPORT COMPLETION DATE**	**CONCLUSIONS**
2	**Updating & Screening Assessment**	**April 2003**	March 2004	No further assessments required for **Carbon Monoxide, Benzene, Lead and 1,3-Butadiene**. Detailed Assessments required for: **Nitrogen Dioxide** due to road traffic sources in Musselburgh High St **Sulphur Dioxide** due to industrial sources (Cockenzie Power Station and Lafarge Cement Works) **PM10** due to road traffic sources in Musselburgh High St and North High St and also due to industrial source (Cockenzie Power Station)
2-1	**Detailed Assessment**	**April 2004**	**April 2005**	**Nitrogen Dioxide** due to road traffic in Musselburgh High St expected to meet Objectives by target year of 2005. No Further Assessment required at this time. **Sulphur Dioxide** in vicinity of Cockenzie Power Station was not forecast to exceed Objectives. 15-minute mean Objective forecast to be slightly exceeded in vicinity of Lafarge Cement Works, although abatement equipment to be installed should ensure that Objective will be met. No further assessments required at this time. PM10 **Annual Mean Objective forecast to be exceeded in Musselburgh High St due to roadwork's and Cockenzie due to emissions from Coal Plant at Cockenzie Power Station. However, results were based on Osiris monitoring system and use of correction factors. Further Assessments to be carried out by East Lothian Council using TEOM Analyser for road traffic sources in Musselburgh and by SEPA using Gravimetric Sampler for industrial source in Cockenzie.**
2-2	**Progress Report**	**April 2005**	**August 2005**	**Nitrogen Dioxide** levels due to road traffic sources continue to comply with Objectives within Musselburgh and throughout East Lothian. PM10 **Further Assessments due to road traffic sources in Musselburgh and industrial source in Cockenzie still to be completed and results to be incorporated in Updating and Screening Assessment Report due in April 2006.**
3	**Updating & Screening Assessment**	**April 2006**	**August 2006**	No exceedences of any Objectives forecast. No Further Assessments required
3-1	**Progress Report**	**April 2007**	**July 2007**	**Nitrogen Dioxide** levels due to road traffic sources in Musselburgh and proposed expansions of Musselburgh Racecourse and Wallyford Village continue, and are forecast, to comply with Objectives. **PM10** levels due to road traffic in Musselburgh complied with using local correction factor but exceeded using national correction factor. TEOM unit to be replaced with a BAM unit following results of Equivalence Study carried out by DEFRA.
3-2	**Progress Report**	**April 2008**	**February 2009**	**Nitrogen Dioxide** levels due to road traffic sources in Musselburgh and proposed expansions of Musselburgh Racecourse and Wallyford Village continue, and are forecast, to comply with Objectives. Passive monitoring to be introduced in Wallyford.

Summary of Previous Review and Assessment Reports				
Round	**Report Type**	**Report Due Date**	**Report Completion Date**	**Conclusions**
4	**Updating & Screening Assessment**	**April 2009**	**November 2009**	**PM10 and Nitrogen Dioxide** levels in Musselburgh will require to be subject of a Detailed Assessment due to the Biomass Unit located at Queen Margaret University. The results of the Updating and Screening Assessment carried out for all other pollutants indicates that current Air Quality Objectives are being complied with.
4-1.1	**Detailed Assessment of Nitrogen Dioxide and PM10 due to QMU Biomass Unit**	**2010**	**October 2010**	**PM10 and Nitrogen Dioxide** levels continue to be met
4-1	**Progress Report**	**April 2010**	**October 2010**	All AQO's being complied with
4-2	**Progress Report**	**April 2011**	**June 2011**	Detailed Assessment of **Nitrogen Dioxide** required for Musselburgh High Street. All other AQO's being complied with.
4-2.1	**Detailed Assessment of Nitrogen Dioxide in Musselburgh due to Road Traffic**	**2012**	**May 2012**	AQMA required for Bridge Street and High Street due to forecast exceedence of Annual Mean AQO if additional monitoring confirms predicted exceedences.
5	**Updating &Screening Assessment**	**April 2012**		AQMA required for Bridge Street and High Street due to forecast exceedence of Annual Mean AQO ***if additional monitoring confirms predicted exceedences in 2012.***
5-1	**Progress Report**	**April 2013**	**August 2013**	AQMA to be declared in Musselburgh in relation to exceedences of NO2 Annual Mean Objective. Further Assessment to be commissioned.
5-1.1	**Further assessment**	**November 2014**	**June 2014**	It is estimated that ambient NOx reductions in the AQMA of between 0% and 27% are required in order to achieve compliance with the annual mean NO2 objective. The source apportionment exercise indicates that emissions from buses form the largest contribution at all locations along the High St AQMA. Modelling of the mitigation scenarios agreed with the Council indicates that an integrated package of interventions would provide the best NOx reductions. Measures that reduce overall traffic, reduce queuing and reduce bus numbers, where appropriate, will reduce road NOx significantly.
5-2	**Progress Report**	**April 2014**	**August 2014**	Monitoring results for 2013, indicate that the current AQMA boundary includes all relevant sources and does not require revocation or amendment at this time. NO_2 levels in AQMA continue to exceed or remain very close to objective.
6-1	**Updating & Screening Assessment**	**April 2015**	**September 2015**	Monitoring results for 2014, indicate that the current AQMA boundary includes all relevant sources and does not require revocation or amendment at this time. NO_2 levels in AQMA continue to exceed or remain very close to objective. Progress is being made wrt development of Action Plan with draft expected early 2016.
6-2	**Annual Progress Report**	**June 2016**	**July 2016**	No exceedances of Air Quality Objectives with downward trend noted in NO_2.Action Plan being progressed. Awaiting results of Micro-simulation traffic model to allow traffic-related mitigation measures to be identified for inclusion in Action Plan.
6-3	**Annual Progress Report**	**June 2017**	**July 2017**	Exceedances of NO2 Annual Mean recorded at T6 and T31.
6-4	**Annual Progress Report**	**June 2018**	**June 2018**	No exceedances of any Air Quality Objectives

6-5	**Annual Progress Report**	**June 2019**	**June 2019**	No-exceedances of any Air Quality Objectives
6-6	**Annual Progress Report**	**June 2020**	**June 2020**	No exceedances of any Air Quality Objectives
6-7	**Annual Progress Report**	**June 2021**	**June 2021**	No exceedances of any Air Quality Objectives. ELC to proceed to a Detailed Assessment of air quality within the AQMA. If future exceedances are deemed unlikely then AQMA to be revoked.
6-8	**Annual Progress Report**	**June 2022**	**July 2022**	No exceedances of any Air Quality Objectives
6-9	**Detailed Assessment of Air Quality within AQMA**	**September 2022**	**September 2022**	Future exceedances unlikely. Recommend revocation of AQMA.
7-0	**Annual Progress Report**	**June 2023**	**September 2023**	No exceedances of any Air Quality Objectives

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

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