

Annual Progress Report (APR)



2024 Air Quality Annual Progress Report (APR) for Scottish Borders Council

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

Local Air Quality Management

August 2024

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Executive Summary: Air Quality in Our Area

Air Quality in the Scottish Borders

Scottish Borders Council undertakes a programme of air quality assessment in accordance with the guidance produced by the UK Government and Devolved Administrations. The Scottish Borders is located between Dumfries and Galloway in the west, South Lanarkshire and West Lothian in the north west, City of Edinburgh, East Lothian and Midlothian to the north, and the counties of Northumberland and Cumbria in England to the south. Parts of the area have historically been heavily industrialised, although much of this has now gone and the area as a whole is predominantly rural. The main routes through the area are the A1, A68, and A7, and the East Coast Mainline railway. The Borders Railway also connects Tweedbank and Edinburgh.

This report sets out the results of air quality monitoring carried out by Scottish Borders Council during 2023 and considers the potential impacts from a range of sources such as road traffic and other transport emissions, industrial processes, commercial and domestic fuel use and fugitive emission sources.

There are no existing significant air quality issues identified within the area. Earlier rounds of review and assessment have identified only NO₂ from road traffic requiring to be considered, however there is no evidence that the annual mean concentration of NO₂ may exceed the specific Air Quality Objectives. In the Scottish Borders, monitoring has shown concentrations of NO₂ to be relatively stable prior to 2020. A reduction in concentrations was seen in 2020 which has generally been maintained. A review of non-automatic monitoring sites saw changes implemented in 2023, including the re-introduction of monitoring in Hawick.

Scottish Borders Council has found no evidence that the levels of any other relevant pollutants may exceed the specific Air Quality Objectives and therefore has not identified the need to designate any Air Quality Management Areas.

Actions to Improve Air Quality

Scottish Borders Council is not currently engaged in any active air quality initiatives other than ongoing monitoring.

In June 2021 Scottish Borders Council agreed a Climate Change Route Map (CCRM) which sets a strategic direction for the Council and its partners and communities to move to a net zero economy by 2045, in line with the national target set by the Scottish Government. As the emissions that pollute our air and those that warm the planet have common sources: vehicles, buildings, power generation and industry, it is recognised that this strategy may result in a positive impact on air quality. In March 2022 full Council approved the 'Climate Change Route Map – Priority Action Plan 2022/24'. The priority actions respond to the Milestones identified within the themes of CCRM. Actions include a new Local Transport and Access Strategy, active travel Feasibility Studies to identify the infrastructure for active travel to be the natural first choice for our regions daily activities, and a bus network review.

Local Priorities and Challenges

Scottish Borders Council has no specific priorities or challenges for the coming year beyond the statutory monitoring and reporting requirements.

How to Get Involved

Members of the public can get involved in improving local air quality by taking alternative modes of transport where possible. This could include joining a cycle to work scheme, walking short distances instead of driving and when driving is unavoidable, taking part in car sharing schemes. Information on local transport can be obtained from the [Scottish Borders Council](#) website.

The Local Access and Transport Strategy promotes the use of electric vehicles. In the Scottish Borders we have a network of charging points for electric vehicles located throughout the area. Further information on the location of charging points is available on the [Scottish Borders Council](#) website.

Clean Air Day took place in June 2023 and is a chance to find out more about air pollution, share information with others and help make the environment and air quality cleaner for everyone. Further details can be found on the [Clean Air Day](#) campaign website.

Further information can also be obtained by contacting Environmental Health at:
PLACEhealth@scotborders.gov.uk.

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1 Local Air Quality Management

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

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

Scottish Borders Council currently does not have any AQMAs.

2.2 Cleaner Air for Scotland 2

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

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

2.2.1 Placemaking – Plans and Policies

Local authorities with support from the Scottish Government will assess how effectively air quality is embedded in plans, policies, City Deals and other initiatives, and more generally

in cross departmental working, identifying and addressing evidence, skills, awareness and operational gaps.

We seek to ensure air quality considerations are part of decision making. Further information on relevant plans/policies is provided in Section 2.3.

2.2.2 Transport – Low Emission Zones

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

Scottish Borders Council has no Low Emission Zones established within the local authority area.

Scottish Borders Council has produced a [Local Access and Transport Strategy](#) which is available on the Scottish Borders Council website. This strategy is currently being updated, and alongside the ESESCR (Edinburgh and South East Scotland City Region Deal) Workforce Mobility project, will form the Council's approach to travel planning.

The [Regional Transport Strategy](#) for the South East of Scotland is prepared by SEStran, which the Scottish Borders is a member of. The Strategy lays out the strategic vision for transport development in south east Scotland up to 2028. Strategy Objectives have been identified, including Strategy Objective 1 'transitioning to a sustainable, post-carbon transport system'. This includes a societal outcome to be delivered of 'Air Quality Transformed'.

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

2.3.1 Air Quality Strategy

Local authorities do not currently have a statutory obligation to prepare or adopt a local air quality strategy, however we acknowledge that the Scottish Government recommends all authorities, particularly those that have previously designated (now-revoked) AQMAs or who have not had to designate AQMAs but have areas close to the exceedance levels, or recognised air quality issues, should consider developing such a strategy. As no areas within the Scottish Borders are close to the exceedance levels and there are no recognised air

quality issues, Scottish Borders Council has not adopted a local air quality strategy at this time, however we are committed to maintaining good air quality and we will keep this under review. We recognise there are benefits of developing an air quality strategy, including emphasising the local authority's role in delivering cleaner air and, by setting an example, encouraging others to take action.

2.3.2 Climate Change Route Map (CCRM)

The benefits of a joined-up approach to air quality and climate change policy areas are recognised. Air quality and climate change are inextricably linked, with air pollution often originating from the same activities that contribute to climate change. In September 2020, Scottish Borders Council agreed a series of recommendations contained within the report 'Responding to the Climate Emergency' which led to the Climate Change Route Map (CCRM) for the Scottish Borders being agreed by the Council in June 2021. This is available to view on the [Scottish Borders Council](#) website. The CCRM sets a strategic direction for the Council and its partners and communities to move to a net zero economy by 2045, in line with the national target set by the Scottish Government. Scottish Borders Council intends to lead by example by controlling its own estate in line with the aims and objectives of the CCRM. It is hoped that this will motivate other individuals and organisations to do likewise. The CCRM is based around 5 themes; Resilience, Transport Use, Nature Based Solutions, Energy and Waste Management. The CCRM is a new approach which will evolve and be populated with development work streams and action as progress is made. In March 2022 full Council approved the 'Climate Change Route Map – Priority Action Plan 2022/24'. The priority actions respond to the Milestones identified within the themes of CCRM. The Plan recognises that it would not be possible to deliver everything at the same pace or time, so an assessment has been undertaken to determine which actions should be prioritised over the next two years. Additional and subsequent actions will continue to be developed to add to and support the activity reflected in the Plan of Priority Actions, as this is a continually evolving and changing programme of action. Key developments will include the roll out of the Council's Place Making Programme. The Council is currently being supported by the Edinburgh Climate Change Institute in delivering the CCRM. This includes establishing an emissions baseline and developing priority actions for emissions reduction.

The Council's commitment to net zero was further underlined in the [Council Plan](#) for 2024/25.

2.3.3 Local Development Plan

The Scottish Government reviewed its national planning policies, National Planning Framework 3 (NPF3) and Scottish Planning Policy (SPP), bringing them together into the single policy document National Planning Framework 4 (NPF4). The Planning (Scotland) Act 2019 requires that the revised National Planning Framework has regard to any national strategy in respect of the improvement of air quality prepared by Scottish ministers.

Scottish Borders Council adopted the updated Local Development Plan on 22nd August 2024, which takes into account the principles of NPF4. The Local Development Plan recognises the area's good air quality and our aim to maintain this standard. Policy EP16 references the Scottish Government's national strategy 'Cleaner Air for Scotland', and aims specifically to protect air quality, which in turn will also help to fulfil the Council's environmental commitments and its contribution to addressing climate change.

The policy applies to business and industrial development that may involve emissions but also to other land uses that, through the generation of traffic, for example, could result in deterioration of local air quality. It refers to a requirement for future communities, workplaces, recreation and retail facilities throughout the Scottish Borders to have access to sustainable transport options and provision for electric vehicle charging. It recognises the importance for any new development and associated road traffic not to have a significant adverse impact on air quality through the introduction of new sources of pollution where they would impact on sensitive receptors. Where possible, the Council has sought to minimise any potential impacts by allocating sites near to local services, although due to the geographic nature of the Scottish Borders, it is acknowledged there will always be reliance on car usage. Transport policies seek to promote the most sustainable means of travel, giving priority to walking and cycling for local journeys, and to public transport in preference to travel by car. New development will also support the change to a low carbon economy by ensuring it does not have a detrimental effect on air quality by encouraging renewable energy options and low emission technologies within the design.

In determining planning applications and preparing document briefs, the Council has regard to sustainability principles, including the preservation of air quality, which underpin all the plan's policies and which developers will be expected to incorporate into their developments. Development proposals that, individually or cumulatively, could adversely affect the quality

of air in a locality to a level that could potentially harm human health and wellbeing or the integrity of the natural environment, must be accompanied by provisions that the Council is satisfied will minimise such impacts to an acceptable degree. Where it is considered appropriate the Council may request that an Air Quality Assessment is undertaken to assist determination of an application

The [Scottish Borders Local Development Plan \(LDP2\)](#) is available on the Scottish Borders Council website.

3 Air Quality Monitoring Data and Comparison with Air Quality Objectives

3.1 Summary of Monitoring Undertaken

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

During 2023 changes were made to the non-automatic air quality monitoring carried out by Scottish Borders Council, including the removal of two NO₂ monitoring locations on *High Street, Galashiels* and the reintroduction of NO₂ monitoring in Hawick on *High Street* and *Bourtree Place*.

3.1.1 Automatic Monitoring Sites

In the Scottish Borders automatic (continuous) monitoring for NO₂ and O₃ was undertaken at one site in Peebles during 2023. This was part of the Automatic Urban and Rural Network (AURN). Table A.1 in Appendix A shows the details of the site. National monitoring results are available at <https://www.scottishairquality.scot/latest>.

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

3.1.2 Non-Automatic Monitoring Sites

Scottish Borders Council undertook non-automatic (passive) monitoring of NO₂ at four sites during 2023, including two sites on *High Street, Galashiels*, one site on *High Street, Hawick* and one site on *Bourtree Place, Hawick*. Table A.2 in Appendix A shows the details of the sites.

During 2020 and 2021 monitoring was not carried out at location DT12 due to building renovation work, however monitoring resumed in January 2022.

The 2023 Air Quality Annual Progress Report provided details of the changes to NO₂ non-automatic monitoring carried out by Scottish Borders Council after a review was undertaken.

The previous review was undertaken in 2017 when the number of monitoring locations was reduced from fourteen to four. The four monitoring sites were introduced on *High Street, Galashiels* in 2006 in order to assess the impact of the new A7 inner relief road. The Inner Relief Road resulted in a significant reduction in NO₂ concentrations and the Council continued to monitor at these four locations. Monitoring in recent years has shown concentrations remained relatively stable, with 2019 concentrations ranging from 17-21µg/m³ across the locations. There was a reduction in concentrations in 2020 which appeared to be as a result of the COVID-19 pandemic and associated restrictions on activity. Levels in 2021 and 2022 remained at similar levels to those in 2020.

The Council recognises that long term monitoring is important for trend analysis to monitor improvements or worsening of air quality in the area, even where limit values are being met, however the review determined that the four locations on *High Street, Galashiels* were no longer required. *High Street, Galashiels* is still considered to be a “hotspot” due to its busy town centre location and canyon-like street, and therefore we proposed to reduce the number of locations by two.

We considered other “hotspots” and decided to re-commence monitoring at two locations in Hawick town centre, although based on the results of previous monitoring no exceedance of the objective was envisaged. Hawick, like Galashiels, is a principal town and has a canyon-like High Street which is a main traffic route through the town with relevant exposure. *High Street, Hawick* was last monitored in 2016 with results of 19µg/m³.

As a result of the review the Council (1) reduced the number of monitoring locations on *High Street, Galashiels* by two and (2) introduced two monitoring locations in Hawick town centre on *High Street* and *Bourtree Place*. These changes were implemented in January 2023 after consultation was carried out with the Scottish Government and SEPA.

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

3.1.3 Other Monitoring Activities

No further monitoring activities were undertaken during 2023.

3.2 Individual Pollutants

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

3.2.1 Nitrogen Dioxide (NO₂)

Table A.3 in Appendix A compares the ratified monitored NO₂ annual mean concentrations for the past five years with the air quality objective of 40µg/m³ at the Peebles automatic monitoring site (CM1). The annual mean concentration of NO₂ has been very stable over the past five years, ranging from 4-6µg/m³ between 2019 and 2023, as illustrated in Figure A.1. In 2023, the annual mean concentration was 4µg/m³; a reduction of 1µg/m³ when compared to 2022.

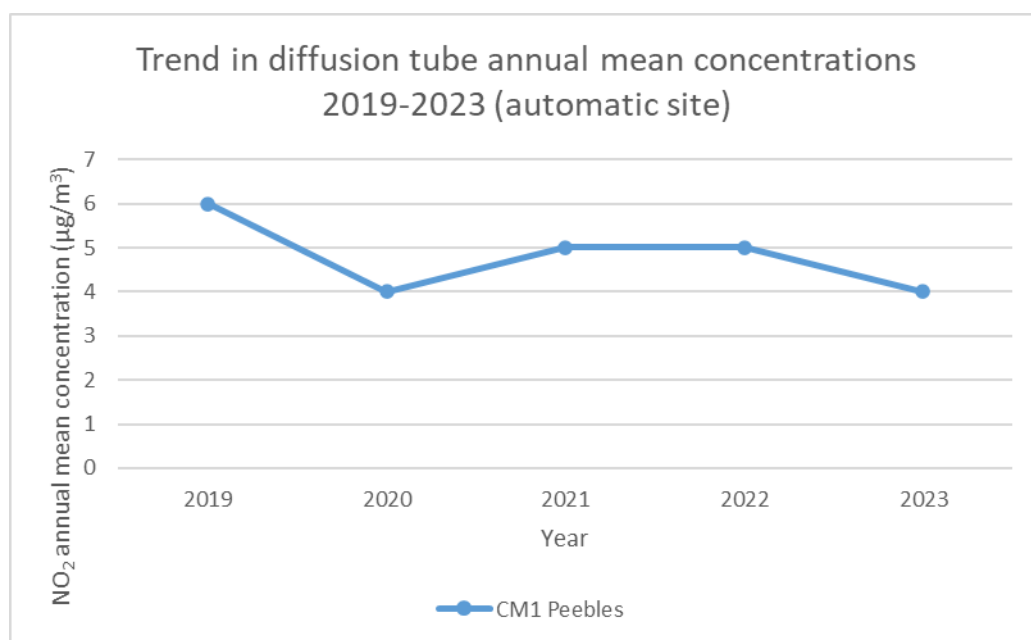


Figure A.1 - Trend in diffusion tube measured annual mean 2019-2023 (automatic site)

Table A.5 in Appendix A compares the ratified continuous monitored NO₂ hourly mean concentrations for the past five years with the air quality objective of 200µg/m³, not to be exceeded more than eighteen times per year. No exceedances were identified in 2023, or indeed within the last five years.

The 2023 annual mean concentrations of NO₂ at all non-automatic monitoring locations are shown to be well within the air quality objective, including the two new monitoring locations

on *Bourtree Place, Hawick* (DT20) and *High Street, Hawick* (DT21). The full 2023 dataset of monthly mean values is provided in Appendix B.

Results of non-automatic monitoring on *High Street, Galashiels* over the last five years have shown no exceedances of the NO₂ objective. The annual mean concentrations were relatively stable at all locations prior to 2020, when there was an average reduction of 5µg/m³ compared to concentrations recorded in 2019. This reduction was maintained in 2021, with the exception of location DT13 which saw an increase of 2µg/m³ compared to 2020. These monitoring locations are within a town centre kerbside location, therefore the reduction in concentrations appears to have been a result of the reduction in vehicle movements due to COVID-19 and the associated restrictions on activity from March 2020 to April 2021. Since then, we have seen a continuation of many people working from home or adopting a hybrid working arrangement. In 2022, monitoring locations DT11, DT13 and DT14 saw a further decrease of 1-2µg/m³ compared to 2021. In 2023, the two remaining *High Street, Galashiels* monitoring location saw an increase of 1-2µg/m³, making them more comparable to levels seen in 2020 and 2021. This is illustrated in Figure A.2. This figure does not show the two Hawick monitoring locations, as they were only introduced in 2023, but it continues to show the two discontinued monitoring locations on *High Street, Galashiels*.

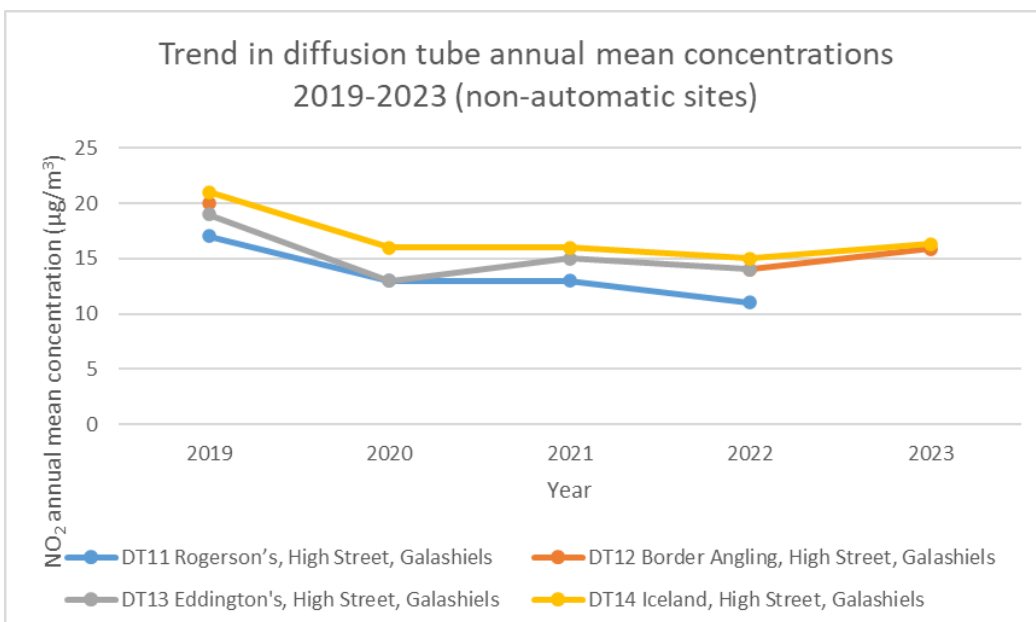


Figure A.2 - Trend in diffusion tube measured annual mean 2019-2023 (non-automatic sites)

The two new monitoring locations on *High Street, Hawick* and *Bourtree Place, Hawick* saw results of $13.7\mu\text{g}/\text{m}^3$ and $18.4\mu\text{g}/\text{m}^3$ respectively. These locations were last monitored in 2016, when results of $19\mu\text{g}/\text{m}^3$ and $18\mu\text{g}/\text{m}^3$ respectively were obtained, however as the exact monitoring points differ in both cases, a direct comparison cannot be made.

3.2.2 Particulate Matter (PM₁₀)

Scottish Borders Council currently does not monitor PM₁₀ and has no plans to do so in the future.

3.2.3 Particulate Matter (PM_{2.5})

Scottish Borders Council currently does not monitor PM_{2.5} and has no plans to do so in the future.

3.2.4 Sulphur Dioxide (SO₂)

Scottish Borders Council currently does not monitor SO₂ and has no plans to do so in the future.

3.2.5 Carbon Monoxide, Lead and 1,3-Butadiene

Scottish Borders Council currently does not monitor Carbon Monoxide, Lead or 1,3-Butadiene and has no plans to do so in the future.

3.2.6 Ozone (O₃)

Automatic (continuous) monitoring for O₃ was undertaken at one site in Peebles during 2023 as part of the Automatic Urban and Rural Network (AURN). The results have been compared with the Air Quality Strategy Objective running 8-hour mean which states the running 8-hour mean should not exceed $100\mu\text{g}/\text{m}^3$ on more than 10 days per year. No exceedances were identified in 2023, or indeed within the last five years.

4 New Local Developments

This section considers new developments in the Scottish Borders that may affect air quality.

4.1 Road Traffic Sources

No new road traffic sources have been identified.

A new road layout has been introduced on the B6374 (Melrose Road) at the junction of the C77, on the outskirts of Galashiels, adjacent to residential properties. This involved the creation of a roundabout, however this is not expected to result in a change to traffic flows as no new flows are feeding into it. Post development traffic flow data shows the number of vehicles to be below the screening assessment threshold criteria, therefore concentrations are unlikely to result in an exceedance of air quality objectives

4.2 Other Transport Sources

No new other transport sources have been identified.

4.3 Industrial Sources

Scottish Borders Council consulted SEPA in order to identify any new industrial installations, or any existing installations which have increased substantially. No new, or substantially changed, industrial sources which might impact on local air quality have been identified.

4.4 Commercial and Domestic Sources

Any planning applications in respect of new biomass boilers and stoves are routinely screened using the approved Screening Tool and no installations have been identified as impacting adversely on local air quality.

4.5 New Developments with Fugitive or Uncontrolled Sources

No new potential sources of fugitive or uncontrolled particulate matter have been identified.

5 Planning Applications

The Council continues to assess the impact of proposed developments. No major planning applications have been identified which may impact on local air quality.

6 Conclusions and Proposed Actions

6.1 Conclusions from New Monitoring Data

The monitoring undertaken by Scottish Borders Council has not identified any potential or actual exceedances of the Air Quality Objectives at any relevant locations, including at the reintroduced NO₂ monitoring locations in Hawick. Analysis of NO₂ concentrations between 2019 and 2023 show NO₂ concentrations follow a relatively stable trend. A reduction in concentrations was seen during 2020 which has generally been maintained since. This is believed to be as a result of the COVID-19 pandemic and associated restrictions on activity, and the continuation of many people working from home or adopting a hybrid working arrangement.

6.2 Conclusions relating to New Local Developments

A review has identified no new developments which might impact on local air quality.

6.3 Proposed Actions

Scottish Borders Council will continue to carefully consider future planning applications which may have the potential to impact on air quality.

The Council recognises there has been an increase in the use of solid fuel appliances, such as wood burning stoves, in domestic and commercial premises in recent years. These appliances are commonly installed in areas such as conservatories, extensions, living rooms and outbuildings. As burning solid fuels such as coal and wood can increase local air pollution, as well as leading to neighbour complaints, the Council aims to increase the awareness of this by improving the information it provides to those considering installing a solid fuel appliance. This will include providing information on the Council's website on factors that should be considered before an appliance is installed to ensure is right for their property or business. Information on Smoke Control Areas will also be provided. This is due to be completed by December 2024.

The results of air quality monitoring, including the new monitoring locations, and other air quality work will be included in the 2025 Annual Progress Report.

Appendix A: Monitoring Results

Table A.1 – Details of Automatic Monitoring Sites

Site ID	Site Name	Site Type	X OS Grid Ref	Y OS Grid Ref	Pollutants Monitored	In AQMA? Which AQMA?	Monitoring Technique	Distance to Relevant Exposure (m)	Distance to kerb of nearest road (m)	Inlet Height (m)
CM1	Peebles	Urban background	324812	641083	O3; NO2	NO	UV Absorption; Chemiluminescent	5	N/A	2.8

Table A.2 – Details of Non-Automatic Monitoring Sites

Site ID	Site Name	Site Type	X OS Grid Ref	Y OS Grid Ref	Pollutants Monitored	In AQMA? Which AQMA?	Distance to Relevant Exposure (m)	Distance to kerb of nearest road (m)	Tube co-located with a Continuous Analyser?	Tube Height (m)
*DT11	38-40 High Street, Galashiels (<i>formerly Rogerson's, High Street, Galashiels</i>)	Kerbside	349063	636287	NO ₂	NO	1	1.5	NO	2.4
DT12	97 High Street, Galashiels (<i>formerly Border Angling, High Street, Galashiels</i>)	Kerbside	348976	636371	NO ₂	NO	0	1.5	NO	2.4
*DT13	26 High Street, Galashiels (<i>formerly Edingtons, High Street, Galashiels</i>)	Kerbside	348982	636384	NO ₂	NO	1	1.5	NO	2.4
DT14	29-31 High Street, Galashiels (<i>formerly Iceland, High Street, Galashiels</i>)	Kerbside	349063	636272	NO ₂	NO	1	1.5	NO	2.4
^DT20	14 Bourtree Place, Hawick	Kerbside	350473	614835	NO ₂	NO	0	1.5	NO	2.4
^DT21	14 High Street, Hawick	Kerbside	350249	614507	NO ₂	NO	0	1.5	NO	2.4

Notes:

- The Site Names for DT11-DT14 have been altered to include only the street name and number, and town.
- * Indicates sites which were discontinued in December 2022, however they continue to be included as reference is made to them within the report.
- ^ Indicates sites introduced in January 2023.

Table A.3 – Annual Mean NO₂ Monitoring Results: Automatic Monitoring (µg/m³)

Site ID	Site Type	Monitoring Type	Valid Data Capture for Monitoring Period (%)	Valid Data Capture 2023 (%)	2019	2020	2021	2022	2023
CM1	Urban background	Automatic	N/A	99	6	4	5	5	4

Notes:

- Exceedances of the NO₂ annual mean objective of 40µg/m³ are shown in **bold**.
- NO₂ annual means exceeding 60µg/m³, indicating a potential exceedance of the NO₂ 1-hour mean objective are shown in **bold and underlined**.
- Means were not “annualised” as the valid data capture for the full calendar year was more than 75%, as per LAQM.TG22. See Appendix C for details.

Table A.4 – Annual Mean NO₂ Monitoring Results: Non-Automatic Monitoring (µg/m³)

Diffusion Tube ID	X OS Grid Ref (Easting)	Y OS Grid Ref (Northing)	Site Type	Valid Data Capture for Monitoring Period (%)	Valid Data Capture 2023 (%)	2019	2020	2021	2022	2023
DT11	349063	636287	Kerbside	N/A	N/A	17	13	13	11	
DT12	348976	636371	Kerbside	N/A	83.3	20	-	-	14	15.9
DT13	348982	636384	Kerbside	N/A	N/A	19	13	15	14	
DT14	349063	636272	Kerbside	N/A	75.0	21	16	16	15	16.3
DT20	350473	614835	Kerbside	N/A	83.3					18.4
DT21	350249	614507	Kerbside	N/A	66.7					13.7

Annualisation has been conducted where data capture is <75% and >25% in line with LAQM.TG22.

Diffusion tube data has been bias adjusted.

Reported concentrations are those at the location of the monitoring site (bias adjusted and annualised, as required), i.e. prior to any fall-off with distance correction.

Notes:

- Exceedances of the NO₂ annual mean objective of 40µg/m³ are shown in **bold**.

- NO₂ annual means exceeding 60µg/m³, indicating a potential exceedance of the NO₂ 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.
- Shaded cells show the years when no monitoring was carried out at these sites. Monitoring ceased at DT11 and DT13, in 2023. Monitoring commenced at DT20 and DT21 in 2023.
- From 2023, concentrations will be reported in one decimal point to improve consistency.
- (-) indicates no data being available due to the removal of erroneous data or problems experienced during the monitoring period.

Table A.5 – 1-Hour Mean NO₂ Monitoring Results, Number of 1-Hour Means > 200µg/m³

Site ID	Site Type	Monitoring Type	Valid Data Capture for Monitoring Period (%)	Valid Data Capture 2023 (%)	2019	2020	2021	2022	2023
CM1	Urban Background	Automatic	N/A	99	0	0	0	0	0

Notes:

- Exceedances of the NO₂ 1-hour mean objective (200 µg/m³ 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.

Table A.6 – 8-Hour Mean O₃ Monitoring Results, Number of 8-Hour Means > 100µg/m³

Site ID	Site Name	Site Type	Valid Data Capture 2023 (%)	Number of 8-hour Means > 100 µg/m ³				
				2019	2020	2021	2022	2023
CM1	Peebles	Urban Background	99	0	0	0	0	0

Notes:

- Exceedances of the O₃ objective are shown in red and bold.

Appendix B: Full Monthly Diffusion Tube Results for 2023

Table B.1 – NO₂ 2023 Monthly Diffusion Tube Results (µg/m³)

DT ID	X OS Grid Ref (Easting)	Y OS Grid Ref (Northing)	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Annual Mean: Raw Data	Annual Mean: Annualised and Bias Adjusted (0.87)	Annual Mean: Distance Corrected to Nearest Exposure	Comment
DT12	348976	636371	19.2	17.4	22.1	16.8	17.2	-	-	14.8	15.8	15.9	21.3	22.3	18.3	15.9	N/A	
DT14	349063	636272	21.9	17.7	18.1	17.0	15.4	-	-	17.5	-	20.5	22.8	17.3	18.7	16.3	N/A	
DT20	350473	614835	25.2	21.5	19.5	17.6	20.6	-	-	16.4	21.7	26.7	24.0	18.3	21.2	18.4	N/A	
DT21	350249	614507	18.4	17.9	13.4	17.9	11.4	-	-	12.4	-	21.3	-	14.5	15.9	13.7	N/A	Erroneous data removed. Annualisation conducted.

- All erroneous data has been removed from the NO₂ diffusion tube dataset presented in Table B.1.
- Annualisation has been conducted where data capture is <75% and >25% in line with LAQM.TG22.
- National bias adjustment factor used.
- Where applicable, data has been distance corrected for relevant exposure in the final column.
- Scottish Borders Council confirm that all 2023 diffusion tube data has been uploaded to the Diffusion Tube Data Entry System.

Notes:

- Exceedances of the NO₂ annual mean objective of 40µg/m³ are shown in **bold**.
- NO₂ annual means exceeding 60µg/m³, indicating a potential exceedance of the NO₂ 1-hour mean objective are shown in **bold and underlined**.
- See Appendix C for details on bias adjustment and annualisation.
- (-) indicates no data being available due to the removal of erroneous data or problems experienced during the monitoring period.

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

New or Changed Sources Identified Within the Scottish Borders During 2023

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

Additional Air Quality Works Undertaken by Scottish Borders Council During 2023

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

QA/QC of Diffusion Tube Monitoring

All diffusion tubes used by the Council are mounted and handled in accordance with the guidance contained in LAQM (TG22). Sites have been selected in consultation with the Scottish Government and SEPA to be representative of human exposure.

The laboratory used for the analysis of the Council's diffusion tubes was Edinburgh Scientific Services. The laboratory is United Kingdom Accreditation Service (UKAS) accredited and is listed as 'satisfactory' in the AIR NO₂ Proficiency Testing Scheme. The analytical method of 50% TEA in Acetone is used.

Monitoring has been completed in adherence with the 2023 Diffusion Tube Monitoring Calendar. In accordance with Chapter 7 of the LAQM Technical Guidance (TG22) the results have been reviewed for erroneous data.

Diffusion Tube Annualisation

Where passive diffusion tubes have less than 75% data capture for the annual period, an annualisation calculation is required to be undertaken in accordance with LAQM Technical Guidance (TG22). Annualisation was carried out for one site, DT21, due to technical issues during the monitoring period and erroneous data being removed from the dataset.

Two nearby, long-term, continuous monitoring sites, forming part of the national network were chosen in order to calculate the annualisation factor. The chosen sites had a data capture of over 85%, were within a 50 mile radius and in the background category to avoid any very local effects. Table C.1 includes details of these sites.

Table C.1 – Annualisation Summary (concentrations presented in $\mu\text{g}/\text{m}^3$)

Site ID	Annualisation Factor Site 1 Name	Annualisation Factor Site 2 Name	Average Annualisation Factor	Raw Data Annual Mean	Annualised Annual Mean	Comments
DT21	Peebles	Bush Estate	0.99	15.9	15.7	

Diffusion Tube Bias Adjustment Factors

Scottish Borders Council have applied a national bias adjustment factor of 0.87 to the 2023 monitoring data. Six studies are applicable to this factor. Supporting evidence is provided in Figure C.1 in the form of a screen capture from the National Diffusion Tube Bias Adjustment Spreadsheet (Version 6/24). A summary of bias adjustment factors used by Scottish Borders Council over the past five years is presented in Table C.2.

National Diffusion Tube Bias Adjustment Factor Spreadsheet						Spreadsheet Version Number: 06/24				
Follow the steps below <u>in the correct order</u> to show the results of <u>relevant</u> co-location studies						This spreadsheet will be updated at the end of September 2024 LAQM Helpdesk Website				
Data only apply to tubes exposed monthly and are not suitable for correcting individual short-term monitoring periods						Whenever presenting adjusted data, you should state the adjustment factor used and the version of the spreadsheet				
This spreadsheet will be updated every few months: the factors may therefore be subject to change. This should not discourage their immediate use.						The LAQM Helpdesk is operated on behalf of Defra and the Devolved Administrations by Bureau Veritas, in conjunction with contract partners AECOM and the National Physical Laboratory.				
Spreadsheet maintained by the National Physical Laboratory. Original compiled by Air Quality Consultants Ltd.										
Step 1: Select the Laboratory that Analyses Your Tubes from the Drop-Down List		Step 2: Select a Preparation Method from the Drop-Down List		Step 3: Select a Year from the Drop-Down List		Step 4: Where there is only one study for a chosen combination, you should use the adjustment factor shown with caution. Where there is more than one study, use the overall factor shown in blue at the foot of the final column.				
If a laboratory is not chosen, we have no data for this laboratory.		If a preparation method is not chosen, we have no data for this method at this laboratory.		If a year is not chosen, we have no data.		If you have your own co-location study then see footnote 1. If uncertain what to do then contact the Local Air Quality Management Helpdesk at LAQMhelpdesk@bureauveritas.com or 0800 0327953				
Analysed By ¹	Method ² <small>Tubed exposure method, chosen from the spreadsheet</small>	Year ³ <small>Tubed exposure method, chosen from the spreadsheet</small>	Site Type	Local Authority	Length of Study (months)	Diffusion Tube Mean Conc. (Dm) ($\mu\text{g}/\text{m}^3$)	Automatic Monitor Mean Conc. (Cm) ($\mu\text{g}/\text{m}^3$)	Bias (B)	Tube Precision ⁴	Bias Adjustment Factor (A) ($\text{C}_{\text{Dm}}/\text{C}_{\text{Cm}}$)
Edinburgh Scientific Services	50% TEA in acetone	2023	KS	Marglebone Road intercomparison	11	46	38	22.3%	P	0.81
Edinburgh Scientific Services	50% TEA in acetone	2023	R	City Of Edinburgh	12	20	18	12.2%	G	0.89
Edinburgh Scientific Services	50% TEA in acetone	2023	R	City Of Edinburgh	11	29	25	12.3%	G	0.89
Edinburgh Scientific Services	50% TEA in acetone	2023	R	City Of Edinburgh	12	31	26	19.1%	G	0.84
Edinburgh Scientific Services	50% TEA in acetone	2023	R	City Of Edinburgh	10	19	16	19.5%	G	0.84
Edinburgh Scientific Services	50% TEA in acetone	2023	KS	City Of Edinburgh	12	31	30	2.4%	P	0.98
Edinburgh Scientific Services	50% TEA in acetone	2023	Overall Factor* (6 studies)						Use	0.87

Figure C.1 - Screen capture of National Diffusion Tube Bias Adjustment Spreadsheet

NO₂ Fall-off with Distance from the Road

No diffusion tube NO₂ monitoring locations within the Scottish Borders required distance correction during 2023.

Table C.2 – Bias Adjustment Factor

Year	Local or National	If National, Version of National Spreadsheet	Adjustment Factor
2023	National	06/24	0.87
2022	National	03/23	0.81
2021	National	03/22	0.87
2020	National	03/21	0.88
2019	National	03/20	0.87

QA/QC of Automatic Monitoring

The QA/QC work on the Peebles site is carried out under the auspices of the Automatic Urban and Rural Network (AURN) system. Routine calibrations are undertaken every four weeks by Council staff as Local Site Operatives.

Data validation and ratification is undertaken by Bureau Veritas, contractors appointed by DEFRA/Scottish Government.

Site audits are undertaken at regular intervals by AEA Technology and no significant issues were identified in 2023.

Live and historic monitoring data is available on the Air Quality in Scotland website (<http://www.scottishairquality.scot/>).

Automatic Monitoring Annualisation

The automatic monitoring site within the Scottish Borders recorded data capture of greater than 75% therefore it was not required to annualise any monitoring data.

NO₂ Fall-off with Distance from the Road

No automatic NO₂ monitoring locations within the Scottish Borders required distance correction during 2023.

Appendix D: Location of monitoring sites



Figure D.1 – Map showing location of automatic monitoring site (AURN)



Figure D.2 – Map showing location of diffusion tube monitoring sites - Galashiels

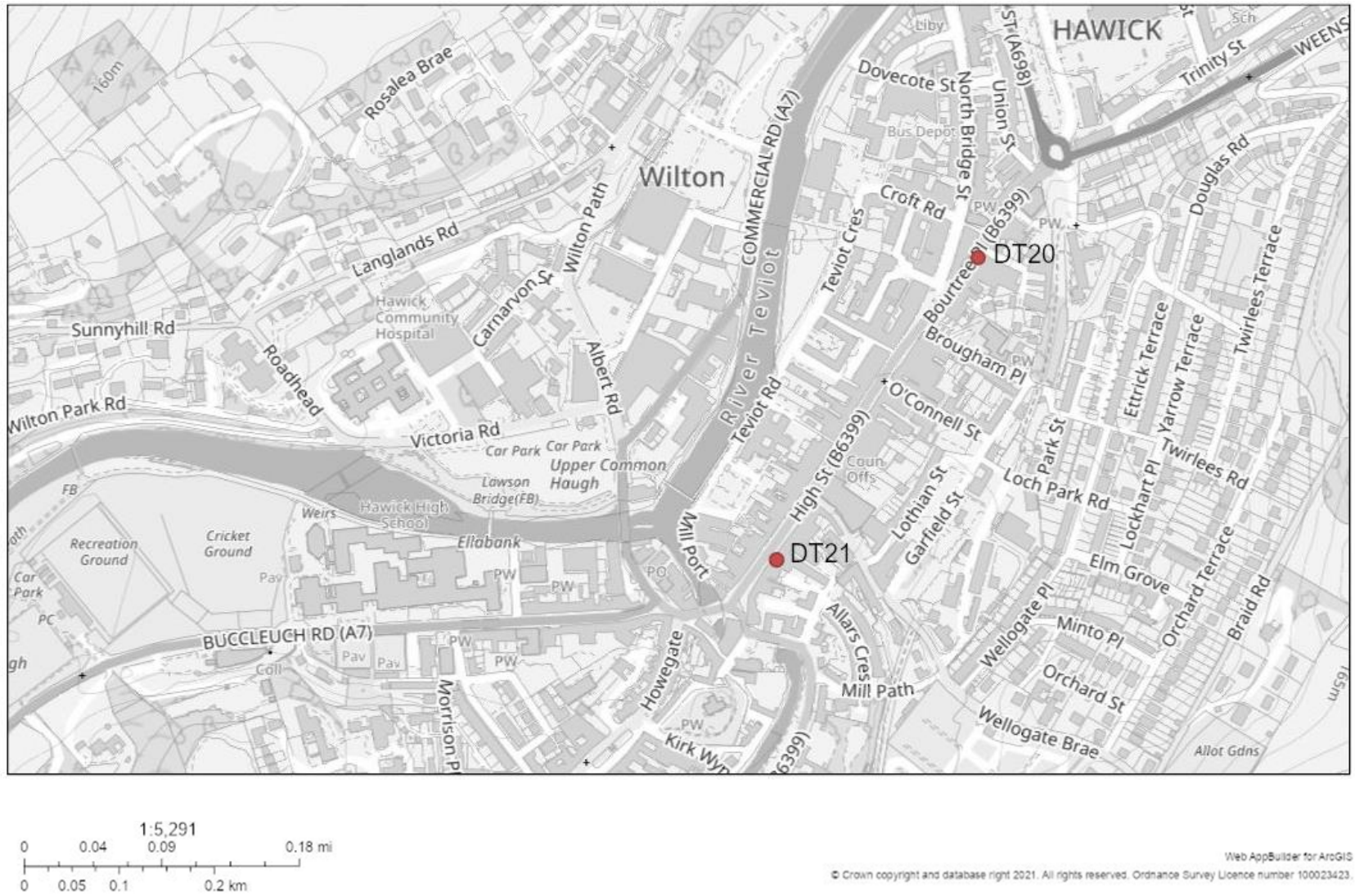


Figure D.3 – Map showing location of diffusion tube monitoring sites - Hawick

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	Annual Progress Report
AURN	Automatic Urban and Rural Network (UK air quality monitoring network)
CCRM	Climate Change Route Map
Defra	Department for Environment, Food and Rural Affairs
DMRB	Design Manual for Roads and Bridges – Air quality screening tool produced by Highways England
DT	Diffusion Tube
FDMS	Filter Dynamics Measurement System
LAQM	Local Air Quality Management
LDP	Local Development Plan
NO ₂	Nitrogen Dioxide
NO _x	Nitrogen Oxides
PM ₁₀	Airborne particulate matter with an aerodynamic diameter of 10µm (micrometres or microns) or less
PM _{2.5}	Airborne particulate matter with an aerodynamic diameter of 2.5µm or less
QA/QC	Quality Assurance and Quality Control
SO ₂	Sulphur Dioxide

References

Defra (2022) Local Air Quality Management Technical Guidance (TG22). Accessed at: <https://laqm.defra.gov.uk/air-quality/featured/uk-regions-exc-london-technical-guidance/>

Scottish Borders Council (2024) Council Plan. Accessed at: <https://www.scotborders.gov.uk/downloads/file/12710/council-plan-2024-25>

Scottish Borders Council (2021) Climate Change Route Map – Priority Actions. Accessed at: <https://www.scotborders.gov.uk/environment/net-zero-climate-change>

Scottish Borders Council (2024) Local Development Plan. Accessed at: <https://www.scotborders.gov.uk/plans-guidance/local-development-plan>

Scottish Government (2021) Cleaner Air for Scotland 2 – Towards a Better Place for Everyone. Accessed at: <https://www.gov.scot/publications/cleaner-air-scotland-2-towards-better-place-everyone/>

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