2022 Air Quality Annual Status Report (ASR)

In fulfilment of Part IV of the Environment Act 1995 Local Air Quality Management

Date: June 2022

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Report Reference Number	**ABC/ASR/2022**
Date	**30/06/2022**

Executive Summary: Air Quality in Our Area

Air Quality in the Allerdale Borough Council Area

Air pollution is associated with a number of adverse health impacts. It is recognised as a contributing factor in the onset of heart disease and cancer. Additionally, air pollution particularly affects the most vulnerable in society: children, the elderly, and those with existing heart and lung conditions. There is also often a strong correlation with equalities issues because areas with poor air quality are also often less affluent areas[1,2].

The mortality burden of air pollution within the UK is equivalent to 28,000 to 36,000 deaths at typical ages[3], with a total estimated healthcare cost to the NHS and social care of £157 million in 2017[4].

In 2021 monitoring of Nitrogen Dioxide was carried out in Allerdale via diffusion tube monitoring sites. The sites were positioned at 18 locations across Allerdale deemed to be most affected by road traffic pollution and worst case. As with previous years of monitoring the 2021 data demonstrates Nitrogen Dioxide levels are well below the national objectives. The observed overall trends for 2021 show significant reductions in levels of Nitrogen Dioxide compared to 2019 in most areas with respect to the public health guidance to restrict movement regarding COVID-19 in 2020/21.

The main pollutant of concern for Allerdale Borough Council is Nitrogen Dioxide (NO_2) which is predominantly associated with road traffic sources and other transport links. Other pollutants of concern include Particulate Matter in the form of PM_{10} and $PM_{2.5}$. Allerdale Borough Council takes a proactive approach to tackling these pollutants via smoke control areas, environmental permitting, planning requirements and regulatory duties under the Clean Air Act 1993 and incoming Environmental Act 2021. Data from 2019 that has been collated and modelled by United Kingdom Health Security Agency (UKHSA) (what was

[1] Public Health England. Air Quality: A Briefing for Directors of Public Health, 2017

[2] Defra. Air quality and social deprivation in the UK: an environmental inequalities analysis, 2006

[3] Defra. Air quality appraisal: damage cost guidance, July 2021

[4] Public Health England. Estimation of costs to the NHS and social care due to the health impacts of air pollution: summary report, May 2018

Public Health England) and shows Allerdale has the lowest human exposure to fine particulate matter (in the form of PM_{10} and $PM_{2.5}$) across North West of England and the second lowest across England (Public Health Outcomes Framework 2019).

Allerdale Borough Council does not currently sample for SO_2 however brief studies and screening were previously carried out in relation to identifying possible SO_2 hotspots in 2017. This initial screening discounted the need for detailed assessment in relation to SO_2.

Allerdale Borough Council works closely with neighbouring local authorities as well as Cumbria County Council, Environment Agency, Natural England and UKHSA to regulate and reduce air pollution. Including the recent publication of the Joint Public Health Strategy 2019 which is inclusive of the effects of air pollution in the community (Cumbria County Council, 2019).

Overall due to the good quality of our air demonstrated by monitoring and data gathered, there are no requirements for any Air Quality Management Areas (AQMA) in Allerdale at the time of reporting. Allerdale Borough Council recognises the increasing significance of maintaining good air quality for the good health of the community and will continue to pursue further proactive improvements where appropriate.

Actions to Improve Air Quality

Whilst air quality has improved significantly in recent decades, and will continue to improve due to national policy decisions, there are some areas where local action is needed to improve air quality further.

The 2019 Clean Air Strategy[5] sets out the case for action, with goals to reduce exposure to harmful pollutants. The Road to Zero[6] sets out the approach to reduce exhaust emissions from road transport through a number of mechanisms; this is extremely important given that the majority of Air Quality Management Areas (AQMAs) are designated due to elevated concentrations heavily influenced by transport emissions.

[5] Defra. Clean Air Strategy, 2019

[6] DfT. The Road to Zero: Next steps towards cleaner road transport and delivering our Industrial Strategy, July 2018

Allerdale Borough Council continues to work towards its revised Council Strategy for 2020-2030 which places an emphasis on a cleaner and greener Allerdale. This includes commitments to creating resilient communities by the effective delivery of Allerdale's statutory functions to support making Allerdale a great place to live, work and visit. More information is here: council strategy (allerdale.gov.uk).

Through the Zero Carbon Cumbria Partnership, to make Cumbria the first carbon-neutral county in the UK by 2037, Allerdale Borough Council is working on the outcomes of the carbon audit for Cumbria.

The Allerdale Climate Change Advisory group have offered further Carbon Literacy Training sessions for staff involved in procurement of goods and services on behalf of Allerdale Borough Council. Allerdale was rated top among the Cumbrian district councils by Climate Emergency UK in their league table ranking the effectiveness of climate change plans. Allerdale Borough Council's plan can be viewed in full at: https://www.allerdale.gov.uk/en/your-environment/climate-change/climate-change-action-plan/

In July 2021, the Government announced that plans and work for reorganisation of Local Government in Cumbria and plans are underway for a new unitary authority by 1st April 2023. You can find more information here: Local Government Reorganisation (allerdale.gov.uk). Work is therefore underway to link our activities with those of similar groups attached to Cumbria County Council, Carlisle City Council and Copeland Borough Council in order to harmonise our activities in advance of Local Government Reorganisation.

Allerdale Borough Council continues to recognise that it is important to raise the awareness of emissions which may harm health and contribute to emissions (See Image 1). In particular the importance on understanding particulate matter and the risks this may present. Burning wood and coal in open fires and stoves totals up to 38% of the UK's emissions of particulate matter ($PM_{2.5}$) (Defra 2019). Image 2 shows the difference in particulate emissions inside your home from the different heating choices available.

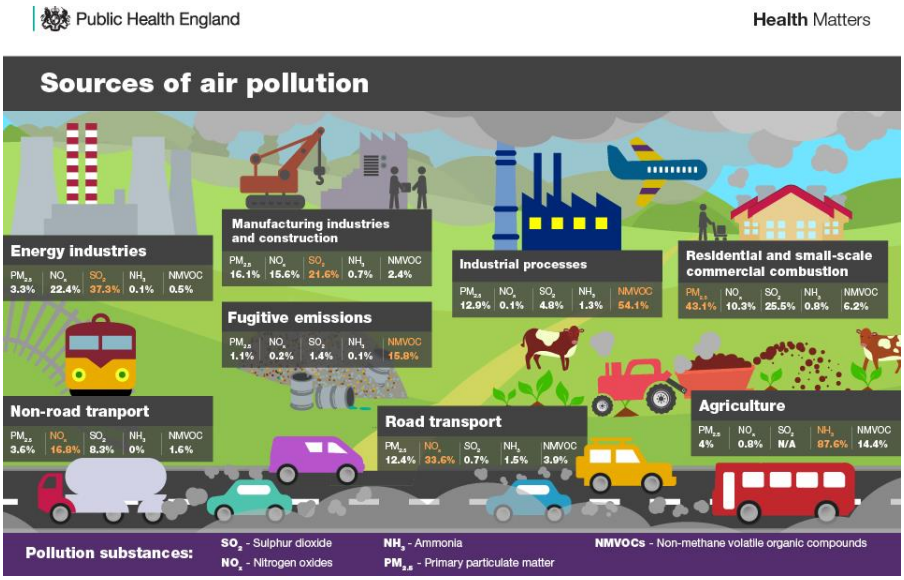

Image 1: An image presenting the sources of air pollution (Public Health England 2018)

Legislation in May 2021 introduced the banning the sale of polluting wet wood and house coal is intended to promote real change, with requirements for Ready to Burn certification scheme to give customers and sellers a clear indication of what fuel is ready to burn (Hetas 2021). More information on the Woodsure certification scheme and where you can find local suppliers are available here: https://woodsure.co.uk/. With further legislation changes regarding Smoke Control Legislation introduced in May 2022 under the Environmental Act 2021: The Environment Act 2021 (Commencement No. 2 and Saving Provision) Regulations 2022 (legislation.gov.uk).

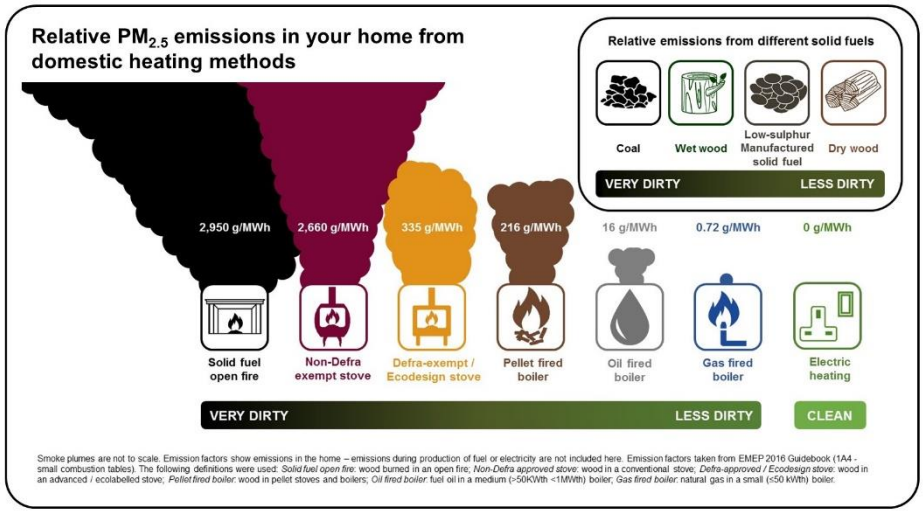

Image 2: An image presenting the relative particulate emissions inside your home from different heating methods (Defra 2018)

For Clean Air Day 2021, Allerdale Borough Council hosted a Walk Allerdale Challenge in line with public health COVID-19 guidance during June 2021 to follow wider Health and Wellbeing activities taking place in the community. The challenge encouraged participants to record their daily steps in an attempt to encourage active travel and understand the links associated with improving health and environment. Communications were made via newsletters with a press release was also released to other local media contacts. Messages of the importance of collective action to improve outdoor and indoor air pollution has been delivered through Allerdale Borough Council's communications, and area Offices (see images 3-7). Preparations are currently ongoing for Clean Air Day 2022 which will be reported in the following reporting year.

Images 3-7: Clean Air Day 2021 posters across Maryport, Keswick, Wigton and the Walk Allerdale Campaign.

Clean Air Day 2021 also saw the opening of the 'Solway Coaster' a 14.1 km route between Allonby and Silloth. The link between the coastal towns forms part of the National Cycle Network Route 72 (Hadrian's Cycleway) which runs from Ravenglass, Cumbria to South Shields, Tyne and Wear. The opening was planned on Clean Air Day 2021 to support the Council's 10 year strategy to address climate change and promote active travel such as cycling to support that aim. As part of the opening, the very first Solway Coast Cycling Festival took place in the months following. The event showcased the Solway coast AONB and its fantastic cycling facilities and encouraged people to incorporate active travel as part of a healthy and environmentally friendly lifestyle.

Image 8: An image of the New Solway Coast Cycleway opened on Clean Air Day 2021 by Councillors

Conclusions and Priorities

Overall, the results from 2021 demonstrate that NO_2 annual mean concentrations within Allerdale Borough Council remain significantly reduced at the majority of monitoring sites when compared to 2019 results due to the impact of the COVID-19 pandemic during 2020/21. In comparison to monitoring locations within 2019/20 only 5 of these monitoring locations reported continued reductions in Nitrogen Dioxide levels during 2021 with DT10/10B South Street, Cockermouth reporting the greatest reduction of 0.8 µg/m^3. Whereas 7 of the monitoring locations from 2019/20 reported a marginal increase in Nitrogen Dioxide levels however not representative to 2019 figures pre the COVID-19 pandemic. With DT4/4B Main Street, Keswick reported the highest increase of Nitrogen Dioxide levels of 2.7 µg/m^3 in 2021 yet, still under pre COVID-19 figures in 2019. For 2021, DT6/6B Ramsay Brow, Workington recorded the highest Nitrogen Dioxide level reading of 22.3 µg/m^3 and DT13/13B Strawberry How Road, Cockermouth reporting the lowest Nitrogen Dioxide level of 4.9 µg/m^3. All results remain well below the national objectives and no exceedances of the annual mean Nitrogen Dioxide Air Quality Objective were identified with no Air Quality Management Area(s) needing to be declared during 2021.

In general, Allerdale Borough Council has very good air quality as demonstrated from the monitoring within this report. Allerdale Borough Council continue to proactively manage potential air quality impacts from major developments both individually and collectively. With detailed air quality assessments required from developments via the planning process when necessary. Allerdale Borough Council are committed to maintaining and improving the air quality within this region with relevant stakeholders.

In 2019, Cumbria County Council engaged with PodPoint to commission a feasibility study, to assess the business case for installing electric vehicle charge points (‘EVCPs’) at five Council-owned sites in strategic locations across the County. 2 new sites across the Allerdale Borough Council area at main Transport Hubs were identified and are to be installed in 2022 and will be reported on in the 2023 Annual Status Report. This project is intended to contribute to the long term facilitation of the anticipated societal move away from vehicles powered by fossil fuels to vehicles using renewable sources of energy. This trend will have positive effects on local environments and specifically air quality, by reducing vehicle emissions, leading to public health benefits.

Allerdale Borough Council's priority continues to work on our commitments and objectives of DEFRA's 2019 Clean Air Strategy and relevant legislation to encourage positive behaviour change. In addition, the ongoing review of data from 2020/21 due to COVID-19 and explore funding opportunities regarding widening the number of other pollutants monitored. Allerdale Borough Council will continue to review air quality during 2022 and will stabilise monitoring locations in order to review the implications of COVID-19 measures during 2020/21. Allerdale Borough Council will look to consider and introduce and/or decommission monitoring or background monitoring sites in relation to increased road traffic and rail traffic associated with future and planned developments in the coming reporting years of local government reorganisation.

Local Engagement and How to get Involved

Air pollution is a local issue and comes from local sources, it has local health impacts and can be tackled by local action. From social media communication and public engagement events it appears the level of interest is growing.

As a resident of Allerdale Borough Council you can help make a positive difference to improve your air quality:

• Where possible consider public transport, walking, car sharing, or cycling to reduce emissions rather use your vehicle for short trips. The Visit Allerdale webpage having worked with Sustrans contains a collection of various cycle and walking routes across this region: https://visitallerdale.co.uk/thingsto-do/road-cycling-routes-in-allerdale/.

• Use Traveline and Cumbria Journey Planner to explore your transport options. Make the most of Park and ride facilities in Cockermouth if travelling to Buttermere Valley within the Lake District from the West Coast. A shuttlebus was available in 2021 and funding has been secured for 2022: Free Cockermouth to Buttermere shuttlebus (lakedistrict.gov.uk).

• If purchasing a car, consider an electric vehicle or a vehicle with the lowest exhaust emissions and the electronic car grants available: Low-emission vehicles eligible for a plug-in grant - GOV.UK (www.gov.uk). Details of available electrical vehicle charging points are available online and are to be made available on our webpages.

• Service your vehicle regularly so it runs efficiently and saves you fuel costs. By checking your tyre pressure will improve your fuel consumption. In addition drive economically and within the speed limit, as emissions can rise at increased speeds. You can report a smoky vehicle to: Report a smoky lorry or bus - GOV.UK (www.gov.uk).

• If installing or replacing an existing wood burning stove consider purchasing a stove that is approved for use in an Allerdale Smoke Control Area or an EcoDesign Ready Stove by visiting: https://www.allerdale.gov.uk/en/yourenvironment/smoke/.

• More information on the Woodsure certification scheme and where you can find local suppliers are available here: https://woodsure.co.uk/.

• Make clean air decisions in your home. From air purifying plants, ventilation, only burning dry-well seasoned or smokeless fuel, chose low volatile organic compounds and fragrance free cleaning products.

• Partake in public consultations regarding developments within Allerdale.

• To learn more information about the facts on air quality: https://www.cleanairhub.org.uk/clean-air-information.

• For further information about air quality in Allerdale visit: https://www.allerdale.gov.uk/en/your-environment/air-quality/.

• Businesses, Education establishments and communities interested in future Clean Air Day events please contact us to register your future interest: environmental.health@allerdale.gov.uk .

Local Responsibilities and Commitment

This ASR was prepared by the Environmental Health Department of Allerdale Borough Council with the support and agreement of the following departments:

- Allerdale Borough Council Environmental Health Department
- Allerdale Borough Council Planning Department
- Cumbria County Council Highways Department
- Allerdale Borough Council Human Resources Department
- Allerdale Waste Services (Tivoli)
- Allerdale Borough Council Licensing Department
- Allerdale Borough Council Housing Services Department
- Allerdale Borough Council Destinations Department (Visit Allerdale)

This ASR has been approved by:

Sharon Sewell
Chief Officer – Place and Governance, Monitoring Officer of Allerdale Borough Council

This ASR has not been signed off by a Director of Public Health. However a relevant senior member of the Council has had the opportunity to review and comment where possible.

If you have any comments on this ASR please send them to Stephen Bewsher at:

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Telephone: 0303 123 1702

Email: environmental.health@allerdale.gov.uk

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1 Local Air Quality Management

This report provides an overview of air quality in Allerdale Borough Council area during 2021. It fulfils the requirements of Local Air Quality Management (LAQM) as set out in Part IV of the Environment Act (1995) and the relevant Policy and Technical Guidance documents.

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

The statutory air quality objectives applicable to LAQM in England are presented in Table E.1.

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

Allerdale Borough Council currently does not have any declared AQMAs

2.2 Progress and Impact of Measures to address Air Quality in the Allerdale Borough Council area

Defra's appraisal of last year's ASR concluded:

The report is well structured, detailed, and provides the information specified in the Guidance. The following comments are designed to help inform future reports.

1. The NO2 trend graphs provide clear comparison with previous years and the air quality objective.

2. The detailed maps of monitoring locations and smoke control areas clearly set out the monitoring network and local area context.

3. Please remove the default table entries for automatic monitoring stations (in red) in the Excel ASR template workbook (CM1, CM2).

4. The report has some inconsistency in the tabulated data capture columns in Table A.1 - e.g. if monitoring has been carried out for a full year, both columns should show equal data capture percentage. This is a minor point but should be corrected for future ASRs.

5. Appropriate QA/QC for the diffusion tube monitoring is provided. A national bias adjustment factor of 0.77 was used. Annualisation was carried out where needed appropriately, and distance correction was not required at any site.

6. The report is a good reference for members of the Public to find out more on how to help improve air quality in their area.

7. The report references the Public Health Outcomes Framework in relation to PM2.5, and shows that exposure to fine particulate matter is low. This is corroborated by using background mapping of PM10 and PM2.5 in the Council's area. The Council is also taking numerous measures to help reduce PM2.5 emissions, which is commendable and should be continued.

8. The Council is frequently reviewing the monitoring strategy to identify possible new areas of concern, which is highly encouraged. The inclusion of the new background monitoring sites during 2020, with further sites planned for the 2021 reporting year is welcomed.

9. Overall, air quality is generally good in Allerdale, and the Council should continue their good work.

Allerdale Borough Council has taken forward a number of direct measures during the current reporting year of 2021 in pursuit of improving local air quality. Details of all measures completed, in progress or planned are set out in Table 2.1. Such measures are included

within Table 2.1, with the type of measure and the progress Allerdale Borough Council have made during the reporting year of 2021 presented. Where there have been, or continue to be, barriers restricting the implementation of the measure, these are also presented within Table 2.1.

Key completed measures are:

• Continued improvements to the Allerdale Borough Council Air Quality webpages with updated guidance.

• Delivery of Clean Air Day 2021.

• Continued engagement with Public Health Professionals via the Air Quality and Public Health events focussed on reducing deaths and ill health attributed by poor air quality in Cumbria and Lancashire.

• Continued working with Port Authorities as set out by the 2019 Clean Air Strategy. With air quality monitoring taking place close towards the Ports of Silloth and Workington.

• Air Quality monitoring sites established in Aspatria Wigton, Seaton and Silloth.

• Media communications within the Borough regarding indoor air pollution and principle of reducing public exposure to air pollution.

Allerdale Borough Council expects the following measures to be completed over the course of the next reporting year:

• Continue to work to educate and push the principles of reducing public exposure to air pollution, domestic burning ($PM_{2.5}$) indoor air quality in line with the 2019 Clean Air Strategy. This will include events, media communications and to explore opportunities within an educational setting.

• Allerdale Borough Council Environmental Health Department will continue to work with Planning Authorities and Developers with regard to new developments or national infrastructure projects focussing on air quality implications of such developments.

• Support communities and Town Councils to increase awareness and display air quality information in light of the 2019 Clean Air Strategy and the Environmental Act 2021.

• Assess agricultural developments via the planning process with regards to ammonia emissions.

• Allerdale Borough Council will continue to regulate and monitor combustion plant emission sources such as: Combined Heat Power Plants, Biomass Boilers and Diesel STOR Generator Plants via the planning process.

• Continue to explore bidding opportunities when eligible for widening the number of pollutants monitored and the resourcing of further air quality initiative activities and events.

• A Climate motion was agreed to make Allerdale Carbon Neutral by 2030 if possible. A cross-party Climate Change Task and Finish Group was set up. Work has started to establish a Climate Change Group to update Allerdale Borough Council's Climate Change Strategy and Action Plan.

• Installation of Electrical Vehicle Charging Points in Workington and Maryport Transport Hubs.

Allerdale Borough Council's priorities for the coming year are:

• Review of monitoring and background monitoring locations for changes in 2022/23 subject to review of data followed by requests and partnership working.

• Deliver a successful Clean Air Day 2022 working with County Council and businesses within the area. In order to encourage positive behavioural changes and lessons being learned, regarding collective action and the impact on air quality from the COVID-19 pandemic during 2020/21.

• Allerdale Borough Council recognises the risks from air pollution on communities that face the greatest risks from the wider social and behavioural determinants of health (The, 2020). Allerdale Borough Council intends to continue to take a multi-agency approach with partners, working on community engagement projects to improve health outcomes.

• Continue to act on the 2019 Clean Air Strategy and any changes to air quality legislation with respect to Environmental Act 2021 and changes coming across 2022.

• Continue to encourage anti-idling awareness and domestic burning campaign. Sustainable transport and active travel messages to encourage positive behavioural change.

• Explore funding options to enable the extension of the number of pollutants monitored working with partnering organisations.

• Support air quality education within specific schools.

• Continue to work towards the agreed Climate Change Motion via the Climate Change Group to review and update the Climate Change Strategy and Action Plan.

Allerdale Borough Council have worked to implement these measures in partnership with the following stakeholders during 2021:

- Local Governmental Departments
- Cumbria County Council Highways Authority
- Neighbouring local authorities

The principal challenges and barriers to implementation that Allerdale Borough Council anticipates facing are:

• Funding issues regarding key national infrastructure projects some of which some are now either aborted or in discussion.

• Allerdale Borough Council is a two-tier Borough Council with County Council, however we continue to work together to improve air quality within Allerdale. With future local government reorganisation plans scheduled for a new Unitary Authority by April 2023.

• Maximising the effective use of resources available including Officer Time and funding.

• Funding to enable the extension of the number of pollutants monitored within the Allerdale region. Households with no car/vans across Cumbria is at 21% in comparison to national average (Cumbria Observatory 2011). This figure implies that there is a high percentage of car ownership. Bus and rail links are adequate although evening and Sunday services can be limited (Cumbria Community Foundation 2019**).**

Progress on the following measures has been slower than expected due to:

• Working within rural communities to influence behaviour on domestic burning due to Officer Time and funding.

Table 2.1 – Progress on Measures to Improve Air Quality

Measure No.	Measure	Category	Classification	Year Measure Introduced	Estimated / Actual Completion Year	Organisations Involved	Funding Source	Defra AQ Grant Funding	Funding Status	Estimated Cost of Measure	Measure Status	Reduction in Pollutant / Emission from Measure	Key Performance Indicator	Progress to Date	Comments / Barriers to Implementation
1	Annual Review of air sampling points for Nitrogen Dioxide	Policy Guidance and Development Control	Air Quality Planning and Policy Guidance	2020	2021	Local Authority Environmental Health, Local Authority Transport Dept.	Local Authority	NO	Fully funded		Implementation		Evidence based via review in sampling points	Implementation on-going	
2	Local Authority Environmental Health to work with Planning Authorities with regard to new development considering air quality implications	Policy Guidance and Development Control	Air Quality Planning and Policy Guidance	2020	2021	Local Authority Environmental Health, Local Authority Planning. Other Planning Authorities. Local Authority Transport Dept.	Local Authority and other organisations	NO	Partially Funded		Implementation		Planning consultations made within consultation period	Environmental Health are consulted at pre-planning stage on all proposed developments which may impact on air quality. Via the planning process Allerdale has been pro-active in ensuring the borough maintains its low levels of pollution. Air quality assessments have been required for developments including potentially polluting industrial applications. Industrial applications, combined heat and power systems or other combustion method energy production such as gas turbine or biomass boilers.	Funding
3	Reducing levels of PM 2.5	Public Information	Via other mechanisms	2020	2021	Local Authority Environmental Health, Local Authority Transport Dept, Planning Authorities.	N/A	NO	Partially Funded		Implementation				Implementation on-going

Measure No.	Measure	Category	Classification	Year Measure Introduced	Estimated / Actual Completion Year	Organisations Involved	Funding Source	Defra AQ Grant Funding	Funding Status	Estimated Cost of Measure	Measure Status	Reduction in Pollutant / Emission from Measure	Key Performance Indicator	Progress to Date	Comments / Barriers to Implementation
4	Reducing ammonia emissions from farming	Policy Guidance and Development Control	Air Quality Planning and Policy Guidance	2020	2021	Local Authority, Defra, Natural England and Other Organisations	UK Government	YES	Partially Funded		Implementation	Ammonia and secondary PM 2.5 emissions	Individual merit and individual applications received working Catchment Sensitive Farming (CSF).	A number of enclosure applications have been received via the Allerdale Planning department due to the incentives offered by Natural England. Natural England are also consulted on any new applications to assist in incorporating best practice design and operation. Investigation of odour complaints will help identify poor practice of spreading. Close working with Environment Agency and United Utilities in relation to the spreading of sewage sludge and operation of Permitted Agricultural activities.	
5	National Infrastructure Projects	Policy Guidance and Development Control	Air Quality Planning and Policy Guidance	2017	2022	United Utilities	United Utilities	NO			Implementation			Anticipated project is to start providing new water supply to Allerdale residents from June 2022 onwards: https://www.unitedutilities.com/cumbria/our-plans/west-cumbria/west-cumbria-update/	

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6	Major Development	Policy Guidance and Development Control	Air Quality Planning and Policy Guidance	2014		West Cumbria Mining Project and Partner Organisations	West Cumbria Mining Project and Partner Organisations	NO			Planning			A project to build the world's first net-zero mine to supply a new domestic source of metallurgical coal for Britain and Europe's steelmakers in nearby Local Authority Area. Under review awaiting update from Secretary of State.	
7	National Infrastructure Projects	Policy Guidance and Development Control	Air Quality Planning and Policy Guidance	2015	2022	Moorside Project and Partner Organisations	Moorside Project and Partner Organisations	NO			Aborted			Applicant has formally withdrawn from this project in March 2022	
8	National Infrastructure Projects	Policy Guidance and Development Control	Air Quality Planning and Policy Guidance	2021		Small Modular Nuclear Reactor Project Considerations	Small Modular Nuclear Reactor Project Considerations	NO			Planning			Partners in Cumbria have been working closely with Rolls-Royce to help it to progress its plans to bring Small Modular Reactors (SMRs) into use to support clean energy generation: https://www.thecumbrialep.co.uk/news-detail/2021/small-modular-reactor-announcement-welcomed/	Plans ongoing.
9	National Infrastructure Projects	Policy Guidance and Development Control	Air Quality Planning and Policy Guidance	2021		Allerdale Community Partnership (Geological Disposal Facility)	Allerdale Community Partnership (Geological Disposal Facility)	NO			Planning			Due to the area's nuclear heritage, an Allerdale geological disposal facility community group has been established to reconsider the future of nuclear waste and its storage.	Consultation ongoing
10	National Significant Infrastructure Project	Policy Guidance and Development Control	Air Quality Planning and Policy Guidance	2018		West Cumbria Tidal Lagoon	West Cumbria Tidal Lagoon	NO			Planning			Project on hold.	

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11	Allerdale Borough Council to continue annually with statutory duties in connection to Part A2 Part B environmental permit processes. Environment Agency are responsible for Part A1 Processes.	Environmental Permits	Introduction/increase of environment charges through permit systems and economic instruments	2020	2021	Allerdale Borough Council	Allerdale Borough Council	NO	Funded		Implementation		Risk based approach in accordance with statutory guidance	Implementation on-going. Allerdale Borough Council regulated permits for 42 Part B and 3 A2 processes. No enforcement action was required during 2021 and no unexpected air pollution incidents have been recorded	
12	Local Policy Section 19 - Renewable Energy and Low Carbon Technologies	Policy Guidance and Development Control	Air Quality Planning and Policy Guidance	2014	2029	Allerdale Borough Council	Allerdale Borough Council	NO			Implementation		In order to achieve national renewable energy targets Allerdale Borough Council supports the development of new sources of renewable energy on the understanding measures taken avoid significant impacts on the local amenity.		Local Plan 1 sets plans for land in Allerdale outside of the Lake District National Park. Local Plan 2 adopted in 2020 identifies or 'allocates' land to deliver the strategy and contains additional supporting policies to guide development.

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13	Adopted Local Policy Section 22 - Sustainable Travel Choices	Transport Planning and Infrastructure	Other	2014	2029	Allerdale Borough Council	Allerdale Borough Council	NO			Implementation		Key objective of spatial planning is to ensure that jobs, housing, shopping, leisure and services are accessible by public transport, walking and cycling. ALPP1, Transport Principles, requires, where appropriate the incorporation of charging points for electric and hybrid vehicles.		Local Plan 1 sets plans for land in Allerdale outside of the Lake District National Park. Local Plan 2 adopted in 2020 identifies or 'allocates' land to deliver the strategy and contains additional supporting policies to guide development.

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14	Adopted Local Policy Section 21 - Developer Contribution	Policy Guidance and Development Control	Other Policy	2014	2029	Allerdale Borough Council	Allerdale Borough Council	NO			Implementation		Community Infrastructure Levy (CIL) is being explored as a levy that the Council may use to charge on new developments. This ensures that without compromising development viability. Contributions will provide necessary enhancements including energy initiatives and climate change solutions with regards to air quality		Local Plan 1 sets plans for land in Allerdale outside of the Lake District National Park. Local Plan 2 adopted in 2020 identifies or 'allocates' land to deliver the strategy and contains additional supporting policies to guide development.
15	Adopted Local Policy Section 36 - Air, Water and Soil Quality	Policy Guidance and Development Control	Air Quality Planning and Policy Guidance	2014	2029	Allerdale Borough Council	Allerdale Borough Council	NO			Implementation		The policy sets out the council's approach to ensuring that air and water quality are protected and enhanced and soil quality is maintained and not eroded.		Local Plan 1 sets plans for land in Allerdale outside of the Lake District National Park. Local Plan 2 adopted in 2020 identifies or 'allocates' land to deliver the strategy and contains additional supporting policies to guide

Measure No.	Measure	Category	Classification	Year Measure Introduced	Estimated / Actual Completion Year	Organisations Involved	Funding Source	Defra AQ Grant Funding	Funding Status	Estimated Cost of Measure	Measure Status	Reduction in Pollutant / Emission from Measure	Key Performance Indicator	Progress to Date	Comments / Barriers to Implementation
															development.
16	Allerdale Travel Hierarchy	Promoting Travel Alternatives	Workplace Travel Planning	2018		Allerdale Borough Council	Allerdale Borough Council	NO			Implementation		Promotion of use of Allerdale's electric car. Reduction in private vehicle mileage and associated pollutant impacts of PM and NO2 etc		
17	Promote and encourage the Home Working Policy	Promoting Travel Alternatives	Encourage / Facilitate home-working	2019	2022	Allerdale Borough Council	Allerdale Borough Council	NO			Completed		Decreases in the amount of travel undertaken to main Offices where Council functions can be carried out remotely or via use of technology.		In response to the COVID-19 outbreak, in 2021 the Homeworking policy was replaced by a Hybrid Working Policy.

Measure No.	Measure	Category	Classification	Year Measure Introduced	Estimated / Actual Completion Year	Organisations Involved	Funding Source	Defra AQ Grant Funding	Funding Status	Estimated Cost of Measure	Measure Status	Reduction in Pollutant / Emission from Measure	Key Performance Indicator	Progress to Date	Comments / Barriers to Implementation
18	Cycle to work	Promoting Travel Alternatives	Promotion of cycling	2017		Allerdale Borough Council	Allerdale Borough Council	NO			Implementation		Active in house travel plan. Tax free bike scheme to help employees save money on a new bike and bike safety equipment.		Prior to the COVID-19 pandemic, we had in place a cycle to work scheme for staff. This scheme is still currently in place whilst the Council is agreeing the hybrid working model. This scheme may be reviewed as the tax benefit may not be applicable for those who are spending the majority of their time working at home.

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19	Allerdale Waste Services Contract	Policy Guidance and Development Control	Sustainable Procurement Guidance	2020		Allerdale Waste Services (Allerdale Borough Council and Tivoli)	Allerdale Waste Services (Allerdale Borough Council and Tivoli)	NO			Implementation		Within the following years Tivoli aim to achieve their goal of using more battery powered handheld equipment. By reviewing collection rounds to make them more efficient in 2021 Allerdale Waste Services took one leased vehicle off the road saving lease costs and having a significant effect on our carbon emissions. Further work on refinement continues in 2022.		
20	Statutory duty of investigation of dark smoke and smoke nuisance and managing smoke control areas. When necessary, enforcement action is taken in accordance with enforcement policy.	Public Information	Other	2020	2021	Local Authority Environmental Health	Local Authority Environmental Health	NO			Implementation	Figures for 2020-2021 have remained stable	Number of smoke nuisance complaints received to the Department.	Engagement through Officer Visits and social media channels.	COVID-19 has provided some challenges to the number of smoke nuisance complaints received during the Lockdown period of early 2021 with services reduced.

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21	Review of traffic restrictions in Allerdale area as part of the Cumbria Transport Plan Strategy 2011 - 2026	Traffic Management	Strategic highway improvements, Re-prioritising road space away from cars, including Access management, Selective vehicle priority, bus priority, high vehicle occupancy lane	2011	2026	Highways Authority	Highways Authority	NO			Implementation			Ongoing	A variety of parking and traffic restrictions in North Allerdale and Workington have been introduced.
22	Air Quality Bids for funding	Policy Guidance and Development Control	Other policy	2020	2021	Allerdale Borough Council and Defra	Allerdale Borough Council and Defra	NO						Under review	
23	Emergency Active Travel Grant Funding	Traffic Management	Strategic highway improvements, Re-prioritising road space away from cars, including Access management, Selective vehicle priority, bus priority, high vehicle occupancy lane	2020	2021	Highways Authority	Highways Authority	NO	Funded		Completed	Indirect reduction anticipated in NO2, PM10 and PM2.5		Social Distancing requirements required streets were lifted. Bike box junctions across the District in main towns was introduced in addition cycle network improvements connecting towns such as Keswick was also introduced as a long term measure.	Economic barriers
24	Allerdale Borough Council - Destinations Team (Visit Allerdale)	Public Information	Via other mechanisms	2018		Allerdale Borough Council - Destinations Team (Visit Allerdale)	Allerdale Borough Council - Destinations Team (Visit Allerdale)	NO	Funded				Public perception of issues associated with tourism and air quality	Ongoing continual review to webpages and promotion of air quality at events. The Department will be adding electric charging points to our Visit Allerdale website.	
25	Allerdale Borough Council Events Policy	Policy Guidance and Development Control	Air Quality Planning and Policy Guidance	2020		Allerdale Borough Council Destinations Team	Allerdale Borough Council Destinations Team	NO					Promote and support events more sustainably	Ongoing	

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26	Cold to Cosy Homes	Other	Other	2019		Allerdale Borough Council Housing Services , CAfS and partners	Allerdale Borough Council Housing Services , CAfS and partners	NO	Funded		Implementation		Number of promotions	Ongoing	To date, 140 out of 817 residents of Allerdale benefited from Cold To Cosy Homes Scheme. Although not set out as an initial air pollution intervention. The scheme provides energy saving and efficiency advice and support. In light of recent movements regarding climate change, indoor air quality and focuses on PM 2.5. The following information has therefore been included in this report as positive and relevant.
27	Green Home Grants	Other	Other	2021		Allerdale Borough Council Housing Services and partners	Allerdale Borough Council Housing Services and partners	NO	Funded		Implementation		Number of applicants	Ongoing	A government energy efficiency scheme in Great Britain to help reduce carbon emissions and tackle fuel poverty. In light of recent movements regarding climate change, indoor air

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															quality and focuses on PM 2.5. The following information has therefore been included in this report as positive and relevant.
28	Implementation of the Air Quality (Taxi and Private Hire Vehicles Database) Regulations 2019	Policy Guidance and Development Control	Other Policy	2019		Allerdale Borough Council Licensing Authority	Allerdale Borough Council Licensing Authority	NO	Funded		Implementation		Number of entries made	Ongoing	To support the UK Plan for tackling roadside nitrogen dioxide concentrations and the development of Clean Air Zones
29	Penrith to Keswick Rail Link and looking at ways to move forward plans to reinstate the Silloth to Carlisle Railway	Transport Planning and Infrastructure	Public transport improvements-interchanges stations and services	2020		Department of Transport	Department of Transport							Ongoing	Air Quality Bid by Cumbrian MPs to Department of Transport Ideas Fund to improve provision of public transport across Cumbria including areas in Allerdale

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30	Major Development	Policy Guidance and Development Control	Air Quality Planning and Policy Guidance	2021	2026	West Cumbria Community Forest. Defra, Forestry Commission, Cumbria Woodlands, and Local Authorities	West Cumbria Community Forest. Defra, Forestry Commission, Cumbria Woodlands, and Local Authorities	No	Funded		Planning			Ongoing	Up to 150 hectares (or around 210 football pitches) of trees, woodlands and forests will be planted, with the equivalent of one tree planted for every resident in Copeland, Barrow and Allerdale. This announcement forms part of the Government's wider action to recover and restore nature, as part of the 25 Year Environment Plan and commitments to reach net zero by 2050.
31	Promotion of local initiatives	Public Information	Other	2019		Allerdale Borough Council, Global Action Plan: Clean Air Day and partners	Allerdale Borough Council, Global Action Plan: Clean Air Day and partners				Implementation		Number of promotions, education and engagement	Ongoing	Clean Air Day 2021 took place with the opening of Complete Solway Cycle Path part of the National Cycle Network (Hadrian's Cycleway). Plans for Clean Air Day are underway for June 2022 and beyond.

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32	Implementation of the Air Quality (Domestic Solid Fuels Standards) (England) Regulations 2020	Policy Guidance and Development Control	Air Quality Planning and Policy Guidance	2021		Cumbria County Council Trading Standards	Cumbria County Council Trading Standards				Implementation		Engagement and enforcement	Ongoing	These regulations cover the banning of polluting wet wood and house coal in England. These regulations introduce a Ready to Burn certification scheme and logo. In order to make a difference to the environmentally responsible use of solid fuels and wood for stoves and boilers.
33	Implementation of the Environmental Act 2021 and amendments to Clean Air Act 1993.	Policy Guidance and Development Control	Air Quality Planning and Policy Guidance	2022		Allerdale Borough Council Environmental Health	Allerdale Borough Council Environmental Health				Implementation		Engagement and enforcement	Ongoing	In relation to smoke, the exemption that used to exist under section 79(1)(b) of the Environmental Protection Act 1990 in relation to smoke emitted from a chimney of a private dwelling within a smoke control area has been removed in England by the amended Clean Air Act 1993 from 1 May 2022.

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34	Allerdale Borough Council's Procurement Strategy 2020 - 2030	Policy Guidance and Development Control	Sustainable Procurement Guidance	2020	2030	Allerdale Borough Council and other Local Authorities through Effective Procurement in Cumbria	Allerdale Borough Council and other Local Authorities through Effective Procurement in Cumbria				Implementation		Sustainable procurement practices	Ongoing	The Council's Procurement Strategy makes reference to environment and sustainability in a purchasing context. Ongoing work with the other Cumbrian local authorities through EPiC (Effective Procurement in Cumbria) should help establish a consistent approach in helping to address climate change and indirectly air quality across Cumbria through sustainable procurement.
35	Building Regulations: Infrastructure for charging electric vehicles	Policy Guidance and Development Control	Air Quality Planning and Policy Guidance	2022		Allerdale Borough Council Building Control	Allerdale Borough Council Building Control				Implementation		Engagement and enforcement	Ongoing	Approved Document S applies to new residential and non-residential buildings; buildings undergoing a material change of use to dwellings; residential and non-residential buildings undergoing major renovation; and mixed-

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															use buildings that are either new, or undergoing major renovation.
36	Allerdale Development Management Policy 6 - Equestrian and Agricultural Buildings	Policy Guidance and Development Control	Air Quality Planning and Policy Guidance	2014	2029	Allerdale Borough Council	Allerdale Borough Council	NO			Implementation		This policy sets that proposals for stables, equestrian activities and agricultural buildings in the countryside will be permitted provided meting specific criteria with no significant adverse effect on air quality/emissions.		Local Plan 1 sets plans for land in Allerdale outside of the Lake District National Park. Local Plan 2 adopted in 2020 identifies or 'allocates' land to deliver the strategy and contains additional supporting policies to guide development.

2.3 $PM_{2.5}$ – Local Authority Approach to Reducing Emissions and/or Concentrations

As detailed in Policy Guidance LAQM.PG16 (Chapter 7), local authorities are expected to work towards reducing emissions and/or concentrations of $PM_{2.5}$ (particulate matter with an aerodynamic diameter of 2.5µm or less). There is clear evidence that $PM_{2.5}$ has a significant impact on human health, including premature mortality, allergic reactions, and cardiovascular diseases.

Allerdale Borough Council recognises the impacts of $PM_{2.5}$ on the health and wellbeing of residents and environment. Public Health England have stated in their statistics that the annual concentration of fine particulate matter ($PM_{2.5}$) exposure to population in the Allerdale District is the lowest in the North West of England. With the average fine particulate matter ($PM_{2.5}$) exposure in Allerdale measured at the new method – concentrations of total PM2.5 at a value 4.0 µg/m^3 in 2020 (Public Health Outcomes Framework, 2020). In comparison to the North West England region value of 6.7 µg/m^3 and the England value of 7.5 µg/m^3 making Allerdale in the best quintile for England.

With the absence of $PM_{2.5}$ and PM_{10} in Allerdale, monitoring data was taken from the current 2018 Defra background mapping resource to provide maximum annual mean $PM_{2.5}$ concentration for Allerdale Borough Council in 2021. This exercise identified an annual mean concentration of 6 µg/m^3 at the coordinates of: X (Easting) 300500 Y (Northing) 528500. The coordinates for this are taken from within a 1 km grid square and this coordinate is a centroid of that location and is in close proximity to monitoring stations DT1/1B, DT2/2B and DT6/6B for NO_2. However, this 2021 projection taken from the 2018 reference year and tools are formed on assumptions taken before the COVID-19 outbreak in the UK. Therefore these tools do not reflect any of the implications on emissions in 2020/21 from any national or local lockdown restrictions.

Allerdale Borough Council is taking the following measures to address $PM_{2.5}$:

• Allerdale Borough Council will continue with its duties to regulate and control in regards to emissions from all Part A2 and Part B Processes located within the Allerdale local authority area.

• Allerdale Borough Council will continue to work with developers with the planning and implementation of major developments which may impact air quality in Allerdale.

• Allerdale Borough Council will continue to monitor intensive farming practices within Allerdale working via the Environment Agency permitted links and the planning process.

• Allerdale Borough Council will consult with Natural England and Environmental Health via the Development Planning process to reduce emissions for new agricultural activities in the area.

• Allerdale Borough Council continues to regulate and enforce Smoke Control Areas and our duties under the Clean Air Act, please see Appendix D for a defined mapped areas.

• Allerdale Borough Council continue to regulate and monitor combustion emission sources such as Combined Heat Power Plants, Biomass boilers and Diesel STOR Generator Plants through the planning process.

• Educational information continues to be distributed via social media and promotional events across the region. In an attempt to change domestic burning behaviours and fuel used by those reliant solid fuels.

• Allerdale Borough Council considers its environmental impact of its council functions via establishing and reviewing its Travel Hierarchy, Home Working (Hybrid) Policy, Electric Car Share Policy and environmental services contracts with Tivoli and Allerdale Waste Services.

• Allerdale Borough Council continues to act upon recommendations provided by the Climate Change Task and Finish Group regarding the Climate Change Motion. As well as continue with the Climate Change Group to review and update the Climate Change Strategy and Action Plan.

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3 Air Quality Monitoring Data and Comparison with Air Quality Objectives and National Compliance

This section sets out the monitoring undertaken within 2021 by Allerdale Borough Council and how it compares with the relevant air quality objectives. In addition, monitoring results are presented for a five-year period between 2017 and 2021 to allow monitoring trends to be identified and discussed.

3.1 Summary of Monitoring Undertaken

3.1.1 Automatic Monitoring Sites

Allerdale Borough Council had no automatic (continuous) monitoring sites during 2021.

3.1.2 Non-Automatic Monitoring Sites

Allerdale Borough Council undertook non- automatic (i.e. passive) monitoring of NO_2 at 18 sites during 2021. Table A.1 in Appendix A presents the details of the non-automatic sites.

Maps showing the location of the monitoring sites are provided in Appendix D. Further details on Quality Assurance/Quality Control (QA/QC) for the diffusion tubes, including bias adjustments and any other adjustments applied (e.g. annualisation and/or distance correction), are included in Appendix C.

Changes during the reporting year (2021) included:

Relocation of DT15/15B Lawn Terrace, Silloth to Eden Street, Silloth

The relocation of this monitoring station a short distance towards Eden Street onto Cumbria County Council road sign in accordance with TG16 is anticipated to take place in 2021. This action was taken due to a review of the data provided in 2020 and Allerdale's approach to monitoring and to encourage greater representation.

Installation of DT16/16B Main Road, Seaton

Working with Cumbria County Council Highways Authority it was identified that it would be beneficial to investigate due to recent traffic management reviews within this area. This monitoring site is positioned on a Cumbria County Council Lamppost at the junction towards Causeway Road and Lowca Lane in close proximity to local retail and primary school.

Installation of DT17/17B South End, Wigton

The installation of another urban background monitoring station has been identified for 2021 in line with TG16. This action has been taken in order to provide another monitoring station within Wigton towards the B5304 and B5305 junction.

Installation of DT18/18B West Street, Aspatria

The introduction of another kerbside monitoring station has been identified for 2021 in line with TG16. This action has been taken in order to provide another monitoring station within Aspatria towards the B5301 and A596 junction.

Planned changes for 2022 monitoring:

Allerdale Borough Council takes a proactive approach towards the review of their air quality monitoring programme. Given the monitoring changes during 2021 and COVID-19 measures in place, Allerdale Borough Council has decided to maintain its monitoring locations for 2022. This is intended to analyse trends and review any behavioural changes associated with the COVID-19 measures from 2020/21. Allerdale Borough Council will continue to review monitoring options for the 2023 reporting year subject to future requests and partnership working.

3.2 Individual Pollutants

The air quality monitoring results presented in this section are, where relevant, adjusted for bias, annualisation (where the annual mean data capture is below 75% and greater than 25%), and distance correction. Further details on adjustments are provided in Appendix C.

3.2.1 Nitrogen Dioxide (NO_2)

Error! Reference source not found. and Table A.2 in Appendix A compare the ratified and adjusted monitored NO_2 annual mean concentrations for the past five years with the air quality objective of 40µg/m^3. Note that the concentration data presented represents the concentration at the location of the monitoring site, following the application of bias adjustment and annualisation, as required (i.e. the values are exclusive of any consideration to fall-off with distance adjustment).

For diffusion tubes, the full 2021 dataset of monthly mean values is provided in Appendix B. Note that the concentration data presented in Table B.1 includes distance corrected values, only where relevant.

Error! Reference source not found. 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.

The full 2021 dataset of monthly mean values is provided in Appendix B. Note that the concentration data presented in Table B.1 includes distance corrected values, only where relevant. Mapped air quality locations are presented in Appendix D. In Table A.2 there are no exceedances of the lower annual objective for Nitrogen Dioxide of 40µg/m^3 at any of the 18 monitoring sites during 2021. As sites are situated for worst case scenario in close proximity to the pollutant source (road traffic). To date, there is no evidence that supports the declaration of an Air Quality Management Area. Figure A.1 – shows trends in Annual Mean NO_2 Concentrations from 2017-2021. The 2018 Annual Screening Report published a review of sampling locations to ensure monitoring is carried out in areas where concentrations are expected to be the highest and where the public (receptors) may be exposed to over the averaging period of the objectives.

Following Local Air Quality Management guidance it has been advised that there is no need to demonstrate modelling of pollutant dispersal and distance correction to the nearest receptor. This is due to the results being well below the national objectives and outside of the threshold recommendations outlined by TG16 (annual mean above 36 μg/m^3). There are no annual means greater than 60μg/m^3 (highest recorded 2021 raw mean of 28.6 μg/m^3), demonstrating compliance with TG16 that an exceedance of the 1-hour mean 200 μg/m^3 objective is very unlikely to be reached at any of the air quality monitoring sites.

Individual site data:

DT1/1B Hall Park View, Workington

This monitoring point is located at a road improvement site for any future infrastructure development. Diffusion tubes are placed at the possible worst case receptor on Hall Park View, Workington. 12 months of diffusion tube data was collected with 12 months being duplicate data, indicating good precision. For 2021, the data demonstrated an annual bias adjusted mean of 13.1 μg/m^3 an increase of 0.1μg/m^3 from 2020 and a decrease of 3.1 μg/m^3 to 16.2 μg/m^3 during the 2019 reporting year.

DT2/2B Murray Road, Workington

This urban centre monitoring location is on the façade of a building facing Murray Road close to the Workington Bus Station, a major bus station hub in Allerdale and the wider Cumbria community. Murray Road, is a High Street in Workington with a one way carriageway predominantly occupied by parking, loading and taxi ranks. 12 months of diffusion tubes were collected with 11 months being duplicate tube data, the annual bias adjusted mean recorded was 21.8 μg/m^3. This result is the second highest Nitrogen Dioxide annual mean concentration in Allerdale for 2021. An increase of 0.2μg/m^3 from 2020 however a 3.6μg/m^3 reduction in 2019; indicating a historic reduction in Nitrogen Dioxide annual mean concentration at this site.

DT3/3B Crown Street, Cockermouth

12 months of diffusion tube data were collected with 12 months being duplicate data, indicating good precision and an improvement in data collection from reporting year's pre

2020. For 2021 the annual bias adjustment for this location was 16.9 μg/m^3 an increase of 1.9 μg/m^3 compared to 15 μg/m^3 in 2020 and a 2.9 μg/m^3 reduction from 2019.

DT4/4B Main Street, Keswick

This roadside location in close proximity to a Guest House at the B5289-A5272 roundabout has been prone to substantial queueing to Lake District locations such as Derwent Water and the Borrowdale Valley. 12 months of diffusion tube data was collected with 12 months being duplicate tube data. The 2021 annual bias adjustment recorded a nitrogen dioxide annual mean concentration of 21.1 μg/m^3 and is the third highest result in Allerdale for 2021. Whereas in 2020 due to probable COVID-19 measures a figure of 18.4μg/m^3 was reported a reduction of 7.1μg/m^3 from the 2019 reporting year.

DT5/5B Curzon Street, Maryport

This kerbside location is situated to a four-way traffic light-controlled box junction and demonstrates worst case. 11 months of diffusion tube data was gained for this location including 11 months of duplicate data indicating good precision. The annual bias adjustment mean results in a nitrogen dioxide mean concentration of 19.1 μg/m^3. Compared to 2020 this is an increase of 0.6 μg/m^3. In comparison to previous monitoring years, the data shows a reduction of 4.8μg/m^3 from 2019 and 1.9μg/m^3 from 2018. Albeit an increase in 2021 as COVID-19 restrictions varied, a steady reduction of the Nitrogen Dioxide annual mean concentrations have occurred at this site.

DT6/6B Ramsay Brow, Workington

This kerbside location is located at a receptor façade along the A66 in close proximity to the traffic lights controlled at the A596 junction. These are 2 major roads within West Cumbria and a bottleneck at Ramsay Brow is a common occurrence. 11 months of diffusion tube data was collected for this location with 11 months of duplicate data. This is the highest overall Nitrogen Dioxide annual mean concentration in Allerdale as was in 2020 with 22.3 μg/m^3 for 2021. Unlike most Allerdale sites in 2021, this is a marginal reduction from 2020 of 0.1μg/m^3. However the result for 2021 remains significantly less to pre COVID-19 levels with a result of 28.5 μg/m^3 reported in 2019.

DT7/7B King Street, Wigton

This is the longest monitoring location for Allerdale situated on a High Street in Wigton since monitoring began in 1993. For 2020, 12 months of diffusion tube data was collected with 12 months of duplicate data. The data for 2021 provided an annual bias adjusted mean of 20μg/m^3 the fourth highest reading for 2021 and an increase of 0.1μg/m^3 from 2020.

DT8/8B Main Road, Harrington

This kerbside location is at a receptor façade along the A597 and is the most southerly air quality monitoring points within Allerdale at the moment. Working with Cumbria County Council Highways Authority and Allerdale Borough Council Planning Department indicates a need to continue to monitor at this location. 12 months of diffusion tube data was collected with 11 months of duplicate data, indicating good precision. The data for 2021 demonstrated an annual bias adjustment mean of 12.5 μg/m^3 a decrease from 2020 of 0.1μg/m^{3}and a 3.7μg/m^3 reduction compared to 2019 data.

DT9/9B Lawson Street, Aspatria

This kerbside location at a receptor façade along the A596 was selected due to community requests regarding an increase in HGV activity.11 months of diffusion tube data was collected with 11 months of duplicate data, indicating good precision. For 2021 the annual adjusted mean recorded was 12.9μg/m^3 a reduction of 0.1μg/m^3 from 2020 and a 3.1μg/m^3 reduction compared to 2019 data.

DT10/10B South Street, Cockermouth

This kerbside location at South Street next to Station Street is in close proximity to residential and commercial properties. This location is located at the junction towards the B5292 and A5086 may provide higher levels from queueing vehicles towards residential receptors when assessed with TG16. 11 months of diffusion tube data was collected with 9 months of duplicate data, indicating good precision. The annual bias adjustment recorded a nitrogen dioxide annual mean concentration of 11.7 μg/m^3 which is a reduction of 0.8μg/m^3 compared to 2020 results.

DT11/11B Penrith Road, Keswick

This monitoring location is situated close to a Guest House along a main A591 and A5271 junction. 12 months of diffusion tube data was collected with 12 months of duplicate data. The data for 2021 generated an annual bias adjustment mean of 14.8μg/m^3 an increase of 1.7μg/m^3 compared to 2020 and a 7.4μg/m^3 reduction in comparison to 2019.

DT12/12B Northside Primary School, Northside

This location is situated at the façade of Northside Primary School in accordance with TG16. In addition this site faces the A596 and is in close proximity to Workington Port and a retail park. 10 months of diffusion tube data was collected with 9 months of duplicate data. The calculated annual bias adjusted mean for 2021 was 9.7μg/m^3 a 0.3μg/m^3 reduction compared to 2020 at 10μg/m^3 and a 2.5μg/m^3 reduction to 2019 data.

DT13/13B Strawberry How Road, Cockermouth

This is a suburban background monitoring location positioned on the outskirts of Cockermouth in accordance with TG16. Based at a Cumbria County Council Lamppost on Strawberry How Road towards Ellermire Drive and the junction near School Gardens in the direction of Strawberry How Nursery School. 12 months of diffusion tube data was collected with 12 months of duplicate data. The annual bias adjusted mean for 2021 was 4.9μg/m^3; an increase of 0.3μg/m^3 from 2020's annualised figure. This location remains the lowest Nitrogen Dioxide annual mean concentration in 2021 for the consecutive year.

DT14/14B Kirkby Street, Maryport

This is an urban background monitoring location positioned in accordance with TG16 in an urban residential area.12 months of diffusion tube data was collected with 10 months of duplicate data. The annual bias adjusted mean for 2021 was 6.5μg/m^3 an increase of 0.9 μg/m^3 from 2020's annualised result. This location remains the second lowest Nitrogen Dioxide annual mean concentration for Allerdale in 2021.

DT15/15B Eden Street, Silloth

This is a newly relocated monitoring location for 2021 and remains an industrial background monitoring location. This site was installed in January 2021, 135m north of the previous Lawn Terrace monitoring location towards the four way junction and B5302. Repositioned to improve representation in accordance with TG16 whereby industrial sources are anticipated to make an important contribution to the total burden on population. 11 months of diffusion tube data was collected with 10 months of duplicate data and is the most northerly monitoring location for Allerdale. The annual bias adjusted mean for 2021 was 8.3$\mu g/m^3$ an increase of 1.4$\mu g/m^3$ from 2020's annualised result.

DT16/16B Main Road, Seaton

This is a new Kerbside monitoring location for 2021 introduced due to community requests from upcoming housing developments in this area. In accordance to TG16 this site is within 1 metre of the kerb of a busy four way junction towards the local primary school and convenience stores. 12 months of diffusion tube data was collected with 11 months of duplicate data indicating good precision, with an annual bias adjusted mean of 9$\mu g/m^3$ for 2021.

DT17/17B South End Street, Wigton

An additional urban background monitoring location was introduced in 2021 and to replace the previous additional monitoring location in Wigton that was decommissioned in 2019. In accordance to TG16, this location is positioned within a residential area away from the urban centre and is broadly representative of urban background conditions. The site faces a four way junction with the residential area of Longthwaite Road and South End Street, opposite a petrol station and Pharmacy. 12 months of diffusion tube data was collected with 12 months of duplicate data, with a bias adjusted mean of 8.1$\mu g/m^3$.This location is therefore the third lowest Nitrogen Dioxide annual mean concentration for Allerdale in 2021.

DT18/18B West Street, Aspatria

An additional roadside location was introduced for 2021 in order to increase representation of monitoring for Aspatria. In accordance with TG16, this kerbside monitoring location is within 1-5 metres of the kerb at a busy junction with the B5301 and A596 towards the

secondary school. 11 months of diffusion tube data was collected with 9 months of duplicate data, and a bias adjusted mean of 12.1μg/m^3 for 2021 was recorded.

Appendix A: Monitoring Results

Table A.1 – Details of Non-Automatic Monitoring Sites

Diffusion Tube ID	Site Name	Site Type	X OS Grid Ref (Easting)	Y OS Grid Ref (Northing)	Pollutants Monitored	In AQMA? Which AQMA?	Distance to Relevant Exposure (m) (1)	Distance to kerb of nearest road (m) (2)	Tube Co-located with a Continuous Analyser?	Tube Height (m)
DT1, DT1B	Hall Park View, Workington	Kerbside	300721	528958	NO2	N/A	0.0	1.0	No	2.5
DT2, DT2B	Murray Road, Workington	Urban Centre	301194	528711	NO2	N/A	N/A	1.0	No	2.5
DT3, DT3B	Crown Street, Cockermouth	Kerbside	311652	530658	NO2	N/A	0.0	0.5	No	2.5
DT4, DT4B	Main Street, Keswick	Roadside	326419	523602	NO2	N/A	4.0	1.5	No	2.5
DT5, DT5B	Curzon Street, Maryport	Kerbside	303778	536534	NO2	N/A	5.0	1.0	No	2.5
DT6, DT6B	Ramsay Brow, Workington	Kerbside	300588	528682	NO2	N/A	0.0	1.0	No	2.5
DT7, DT7B	King Street, Wigton	Kerbside	325508	548419	NO2	N/A	2.0	1.0	No	2.5
DT8, DT8B	Main Road, High Harrington	Roadside	299591	525545	NO2	N/A	0.0	2.0	No	2.5
DT9, DT9B	Lawson Street, Aspatria	Kerbside	315299	542145	NO2	N/A	0.0	1.0	No	2.5
DT10, DT10B	South Street, Cockermouth	Kerbside	312091	530547	NO2	N/A	8.7	0.5	No	2.5
DT11, DT11B	Penrith Road, Keswick	Kerbside	327949	523764	NO2	N/A	7.0	1.0	No	2.5

Diffusion Tube ID	Site Name	Site Type	X OS Grid Ref (Easting)	Y OS Grid Ref (Northing)	Pollutants Monitored	In AQMA? Which AQMA?	Distance to Relevant Exposure (m) (1)	Distance to kerb of nearest road (m) (2)	Tube Co-located with a Continuous Analyser?	Tube Height (m)
DT12, DT12B	Northside Primary School, Northside	Kerbside	299939	529709	NO2	N/A	8.0	1.0	No	2.5
DT13, DT13B	Strawberry How Road, Cockermouth	Suburban	313108	529923	NO2	N/A	4.0	0.0	No	2.5
DT14, DT14B	Kirkby Street, Maryport	Urban Background	303671	536648	NO2	N/A	0.0	2.0	No	2.5
DT15, DT15B	Eden Street, Silloth	Industrial	310949	553517	NO2	N/A	2.0	0.5	No	2.5
DT16, DT16B	Main Road, Seaton	Kerbside	301765	530720	NO2	N/A	6.1	1.0	No	2.5
DT17, DT17B	South End Street, Wigton	Urban Background	325568	547874	NO2	N/A	2.9	3.1	No	2.5
DT18, DT18B	West Street, Aspatria	Roadside	314286	541751	NO2	N/A	15.0	2.0	No	2.5

Notes:

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

(2) N/A if not applicable.

Table A.2 – Annual Mean NO_2 Monitoring Results: Non-Automatic Monitoring (µg/m^3)

Diffusion Tube ID	X OS Grid Ref (Easting)	Y OS Grid Ref (Northing)	Site Type	Valid Data Capture for Monitoring Period (%) (1)	Valid Data Capture 2021 (%) (2)	2017	2018	2019	2020	2021
DT1, DT1B	300721	528958	Kerbside	100	100.0		16.0	16.2	13.0	13.1
DT2, DT2B	301194	528711	Urban Centre	100	100.0	28.5	27.4	25.0	21.6	21.8
DT3, DT3B	311652	530658	Kerbside	100	100.0			19.8	15.0	16.9
DT4, DT4B	326419	523602	Roadside	100	100.0	29.3	26.0	25.5	18.4	21.1
DT5, DT5B	303778	536534	Kerbside	91.7	92.3	26.2	25.2	23.9	19.7	19.1
DT6, DT6B	300588	528682	Kerbside	91.7	90.4	30.0	32.0	28.5	22.4	22.3
DT7, DT7B	325508	548419	Kerbside	100	100.0	23.1	23.4	23.7	19.9	20.0
DT8, DT8B	299591	525545	Roadside	100	100.0		16.8	16.2	12.6	12.5
DT9, DT9B	315299	542145	Kerbside	91.7	90.4		16.7	16.0	13.0	12.9
DT10, DT10B	312091	530547	Kerbside	83.4	92.3			16.5	12.5	11.7
DT11, DT11B	327949	523764	Kerbside	100	100.0		21.7	20.2	13.1	14.8
DT12, DT12B	299939	529709	Kerbside	79.2	84.6			12.2	10.0	9.7
DT13, DT13B	313108	529923	Suburban	100	100.0				4.5	4.9
DT14, DT14B	303671	536648	Urban Background	100	100.0				5.6	6.5
DT15, DT15B	310949	553517	Industrial	87.5	92.3					8.3
DT16, DT16B	301765	530720	Kerbside	100	100.0					9.0

Diffusion Tube ID	X OS Grid Ref (Easting)	Y OS Grid Ref (Northing)	Site Type	Valid Data Capture for Monitoring Period (%) (1)	Valid Data Capture 2021 (%) (2)	2017	2018	2019	2020	2021
DT17, DT17B	325568	547874	Urban Background	100	100.0					8.1
DT18, DT18B	314286	541751	Roadside	100	100.0					12.1

☐ **Annualisation has been conducted where data capture is <75% and >25% in line with LAQM.TG16.**

☒ **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:

The annual mean concentrations are presented as µg/m^3.

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 <u>bold and underlined</u>.

Means for diffusion tubes have been corrected for bias. All means have been "annualised" as per LAQM.TG16 if valid data capture for the full calendar year is less than 75%. See Appendix C for details.

Concentrations are those at the location of monitoring and not those following any fall-off with distance adjustment.

(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%).

Figure A.1 – Trends in Annual Mean NO_2 Concentrations

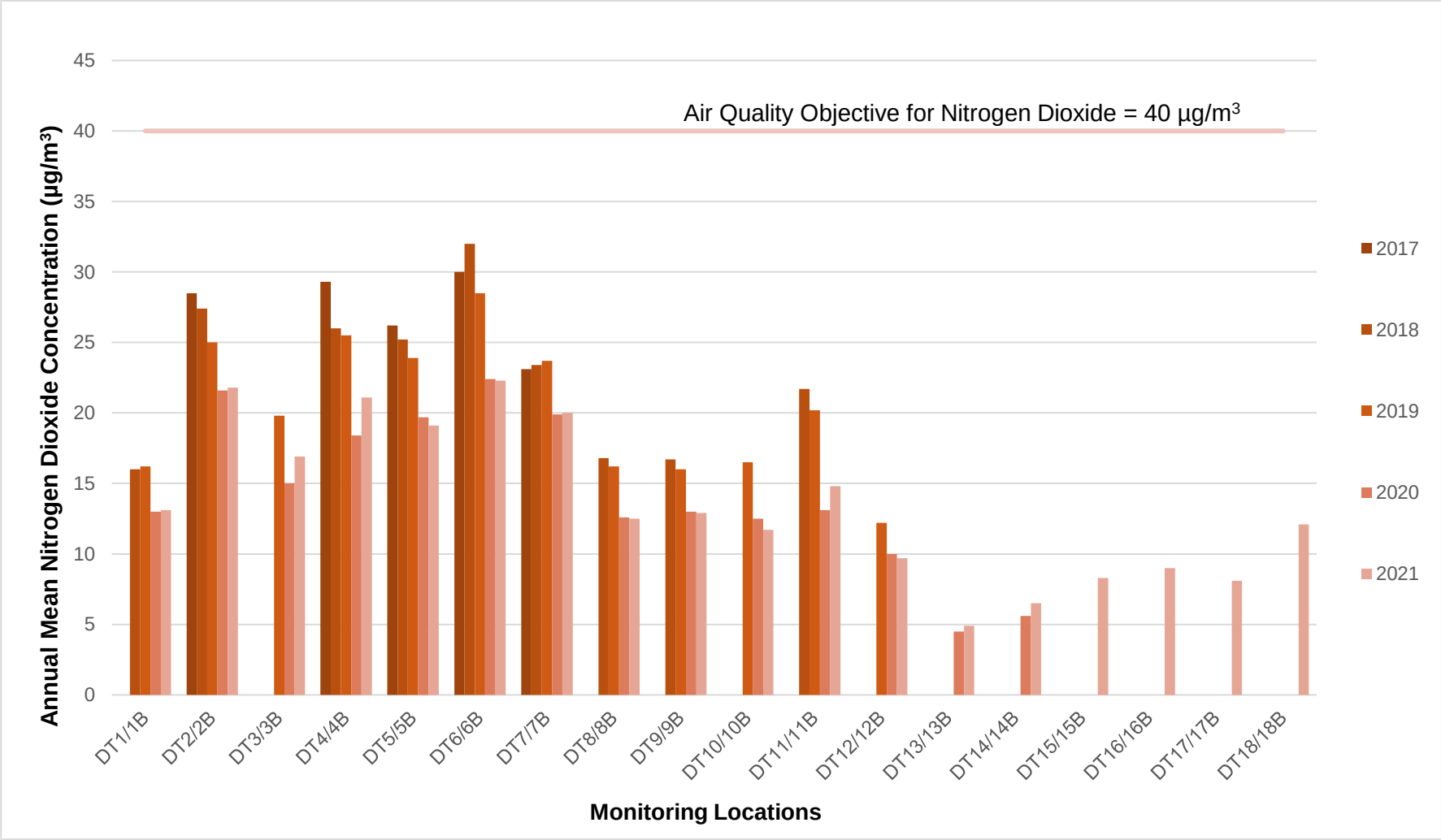

Figure A.1: Presented NO2 annual mean concentrations for the sites DT1/1B to DT18/18B from 2017 to 2021. There are no exceedances of the annual mean objective in 2021 and there is a general trend of reduction in levels across locations.

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Appendix B: Full Monthly Diffusion Tube Results for 2021

Table B.1 – NO_2 2021 Diffusion Tube Results ($\mu g/m^3$)

DT ID	X OS Grid Ref (Easting)	Y OS Grid Ref (Easting)	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Annual Mean: Raw Data	Annual Mean: Annualised and Bias Adjusted (0.78)	Annual Mean: Distance Corrected to Nearest Exposure	Comment
DT1, DT1B	300721	528958	24.5	19.8	16.1	17.1	13.8	13.0	13.2	15.2	17.3	15.2	17.9	19.3	16.8	13.1		
DT2, DT2B	301194	528711	35.8	22.7	30.6	32.4	26.6	26.3	26.2	25.2	29.8	27.8	18.6	32.9	27.9	21.8		
DT3, DT3B	311652	530658	27.6	21.4	17.2	22.1	21.4	18.1	18.9	15.9	24.6	24.2	24.5	24.3	21.7	16.9		
DT4, DT4B	326419	5230658	24.6	18.8	20.5	28.0	13.6	25.1	34.0	27.4	31.9	33.8	36.3	31.5	27.1	21.1		
DT5, DT5B	303778	536534	30.4	26.4	30.6	25.6	21.4	24.1	24.2	0.0	26.7	26.2	29.8	29.6	24.6	19.1		
DT6, DT6B	300588	528862	34.7	39.8	30.9	26.9	32.1	26.6	22.3	27.4	35.7	35.8	31.5	0.0	28.6	22.3		
DT7, DT7B	325508	548419	31.3	23.0	25.7	30.3	22.8	22.4	23.8	24.4	26.8	27.5	34.4	15.8	25.7	20.0		
DT8, DT8B	299591	525545	24.4	19.9	13.6	21.8	16.2	13.4	13.2	8.5	14.8	13.8	12.8	19.9	16.0	12.5		
DT9, DT9B	315299	542145	23.4	17.5	18.0	17.1	16.2	14.7	17.4	14.9	17.8	0.0	23.5	19.0	16.6	12.9		
DT10, DT10B	312091	530547	22.7	0.0	7.9	19.2	14.9	14.4	15.9	13.7	18.0	18.1	23.2	11.7	14.9	11.7		
DT11, DT11B	327949	523764	15.8	16.4	10.6	18.5	19.3	18.3	18.6	19.1	24.8	22.2	21.7	22.4	19.0	14.8		
DT12, DT12B	299939	529709	16.7	16.4	17.5	12.1	9.5	8.7	10.2	0.0	0.0	16.4	7.5	34.0	12.4	9.7		
DT13, DT13B	313108	529923	7.6	7.4	5.2	6.7	4.3	4.4	4.3	3.7	6.1	7.0	9.6	9.3	6.3	4.9		
DT14, DT14B	303671	536648	13.9	6.0	5.7	9.2	7.0	5.9	6.4	6.6	7.5	4.7	14.2	13.0	8.3	6.5		
DT15, DT15B	310949	553517	16.5	14.0	11.3	12.6	10.5	11.3	9.9	10.9	11.0	5.5	0.0	14.2	10.6	8.3		
DT16, DT16B	301765	530720	15.8	13.9	7.2	12.3	10.9	10.1	10.2	8.6	12.3	14.7	7.3	14.8	11.5	9.0		
DT17, DT17B	325568	547874	14.9	13.1	7.8	12.3	9.2	7.0	8.3	7.6	10.1	9.5	12.4	12.4	10.4	8.1		
DT18, DT18B	314286	541751	19.9	11.6	17.2	17.4	18.7	17.1	6.8	13.9	8.6	17.5	18.2	20.1	15.6	12.1		

☐ **All erroneous data has been removed from the NO_2 diffusion tube dataset presented in Table B.1.**

☐ **Annualisation has been conducted where data capture is <75% and >25% in line with LAQM.TG16.**

☐ **Local bias adjustment factor used.**

☒ **National bias adjustment factor used.**

☐ **Where applicable, data has been distance corrected for relevant exposure in the final column.**

☒ **Allerdale Borough Council confirm that all 2021 diffusion tube data has been uploaded to the Diffusion Tube Data Entry System.**

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.

See Appendix C for details on bias adjustment and annualisation.

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

New or Changed Sources Identified Within the Allerdale Borough Council area during 2021

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

Additional Air Quality Works Undertaken by Allerdale Borough Council During 2021

Allerdale Borough Council has not completed any additional works within the reporting year of 2021. Other than the installation of new monitoring locations and repositioning of DT15/15B in January 2021.

QA/QC of Diffusion Tube Monitoring

Monitoring has been completed in adherence with the 2021 Diffusion Tube Monitoring Calendar. Whereby Tubes are changed on the specified date. If not, tubes may be changed within ±2 days of the due date. SOCOTEC is the laboratory that supplies and analyses the diffusion tubes collected by Allerdale Borough Council. The diffusion tube supplier was not changed part way through the year of 2021. In the AIR-PT inter comparison scheme for comparing spiked Nitrogen Dioxide diffusion tubes, SOCOTEC currently holds the highest rank of a satisfactory laboratory. DEFRA information indicates the laboratory precision as good for all 2021 data. The Nitrogen Dioxide tubes are prepared by spiking acetone: triethanolamine (50:50) onto grids prior to the tubes being assembled. They are desorbed with distilled water and the extract analysed using a segmented flow autoanalyser with ultraviolet (UV) detection. The results are initially calculated assuming an ambient temperature of 11 °C and are adjusted to 20 °C to allow for direct comparison with EU limits.

Diffusion Tube Annualisation

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

Diffusion Tube Bias Adjustment Factors

The diffusion tube data presented within the 2022 ASR have been corrected for bias using an adjustment factor. Bias represents the overall tendency of the diffusion tubes to under or over-read relative to the reference chemiluminescence analyser. LAQM.TG16 provides guidance with regard to the application of a bias adjustment factor to correct diffusion tube monitoring. Triplicate co-location studies can be used to determine a local bias factor based on the comparison of diffusion tube results with data taken from NO_x/NO_2 continuous analysers. Alternatively, the national database of diffusion tube co-location surveys provides bias factors for the relevant laboratory and preparation method.

Allerdale Borough Council have applied a national bias adjustment factor of 0.78 to the 2021 monitoring data. The overall national factor selected was SOCOTEC Didcot (50% TEA in Acetone) based on 23 studies applicable to the factor from the 03/22 version of the national spreadsheet as the most recent spreadsheet at the time of writing. A summary of bias adjustment factors used by Allerdale Borough Council over the past five years is presented in Table C.1.

Table C.1 – Bias Adjustment Factor

Monitoring Year	Local or National	If National, Version of National Spreadsheet	Adjustment Factor
2021	National	03/22	0.78
2020	National	03/21	0.77
2019	National	03/20	0.75
2018	National	03/19	0.76
2017	National	03/18	0.77

NO_2 Fall-off with Distance from the Road

Wherever possible, monitoring locations are representative of exposure. However, where this is not possible, the NO_2 concentration at the nearest location relevant for exposure has been estimated using the Diffusion Tube Data Processing Tool/NO_2 fall-off with distance calculator available on the LAQM Support website. Where appropriate, non-automatic annual mean NO_2 concentrations corrected for distance are presented in Table B.1.

No diffusion tube NO_2 monitoring locations within Allerdale Borough Council required distance correction during 2021.

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

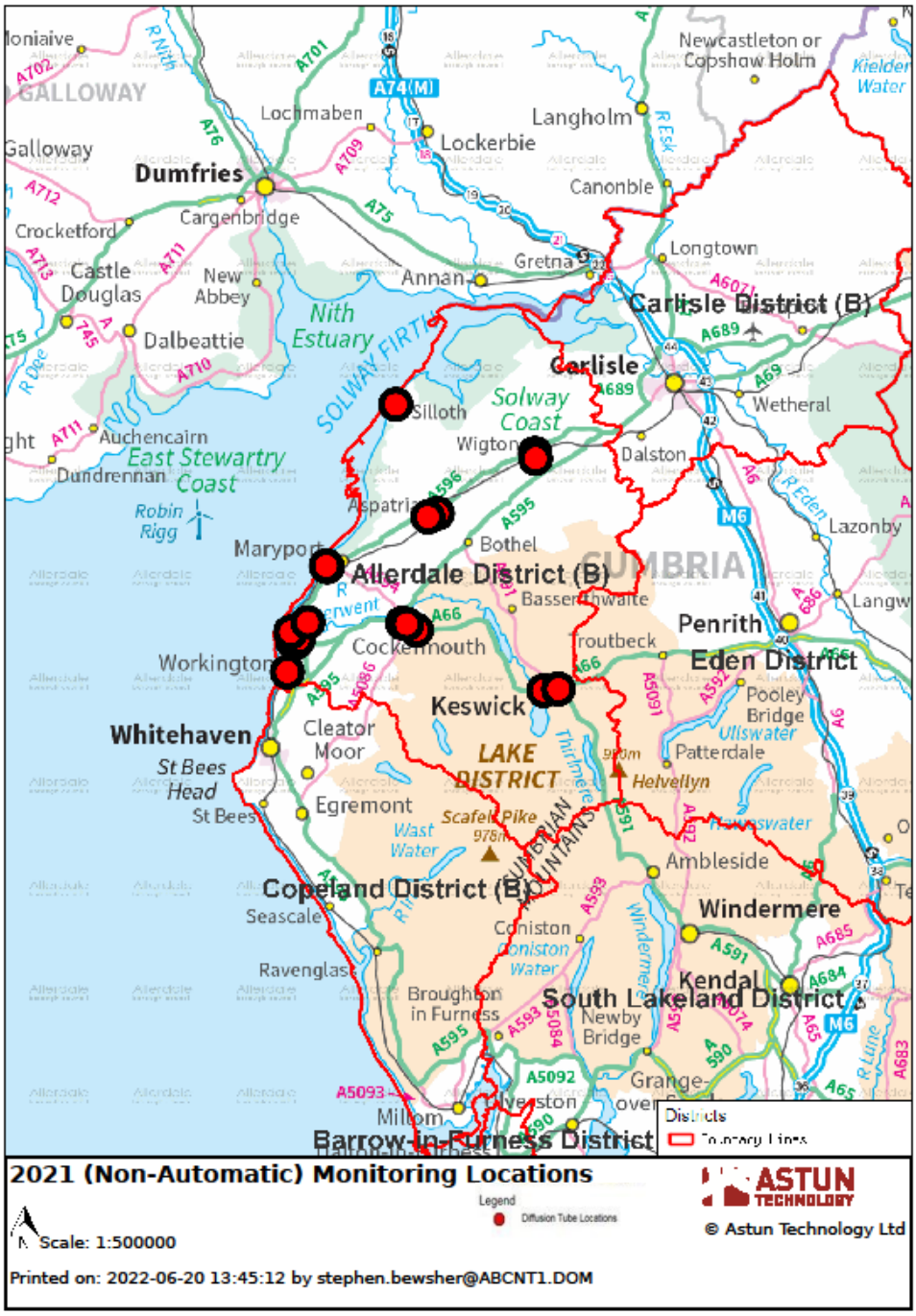

Figure D1: Presents a map of non-automatic sites across the Allerdale Borough Council area during 2021

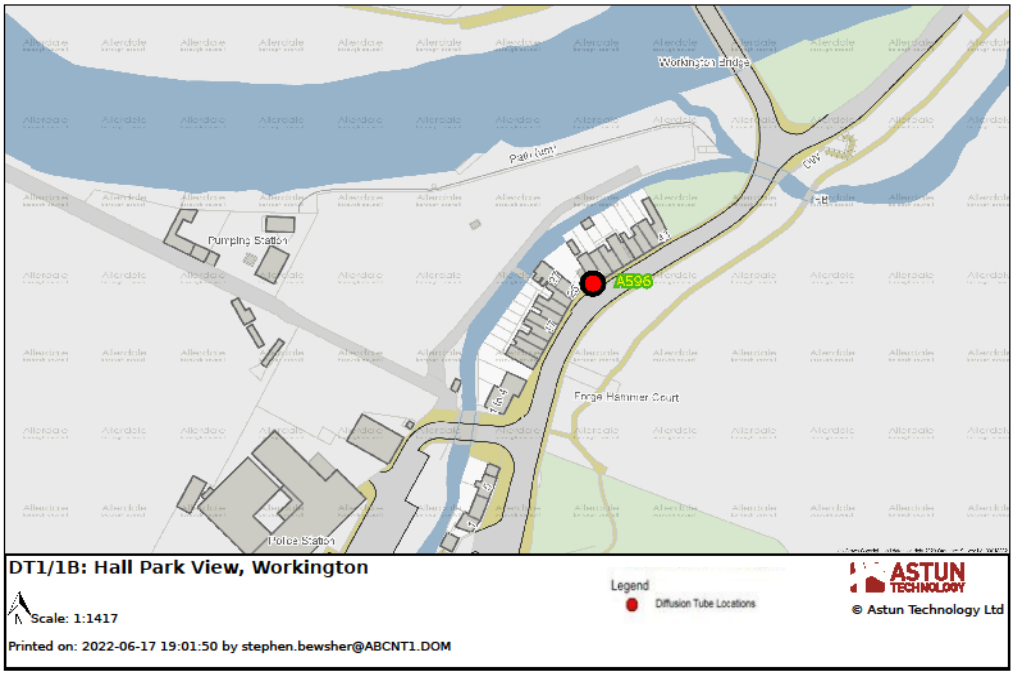

Figure D2: Presents a Map of DT1/1B monitoring location

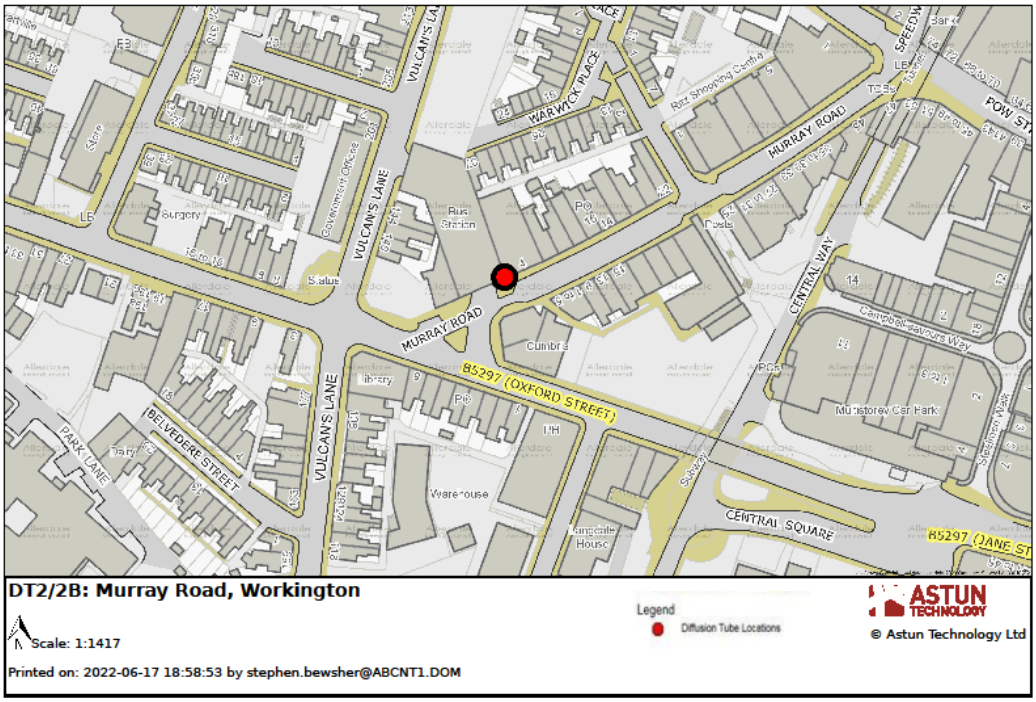

Figure D3: Presents a Map of DT2/2B monitoring location

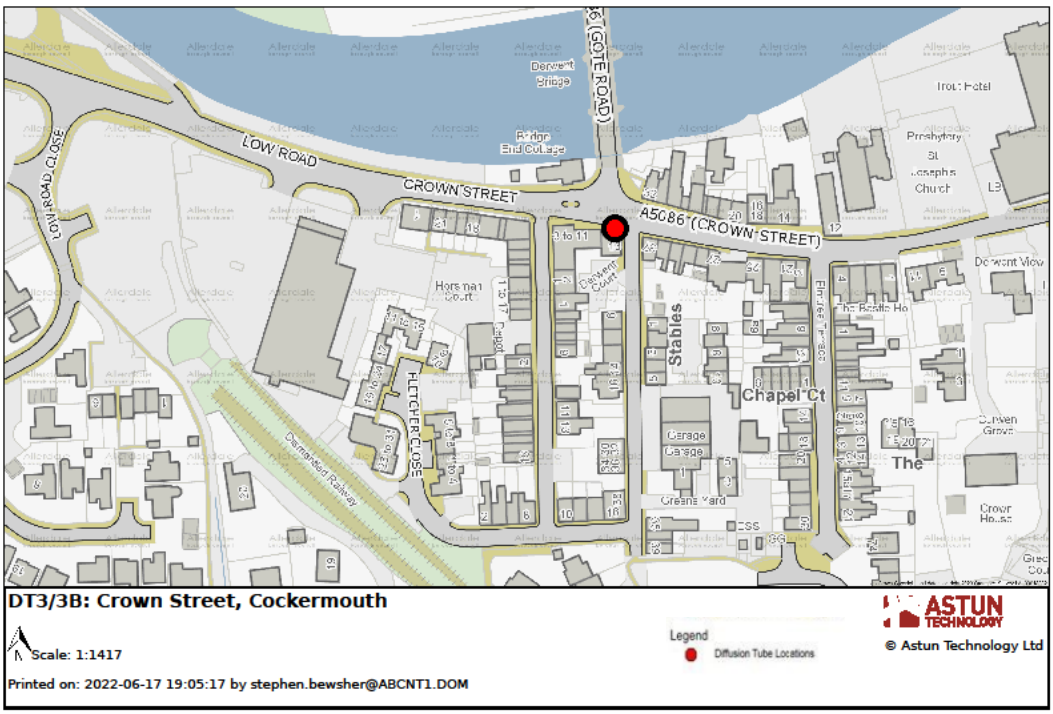

Figure D4: Presents a Map of DT3/3B monitoring location

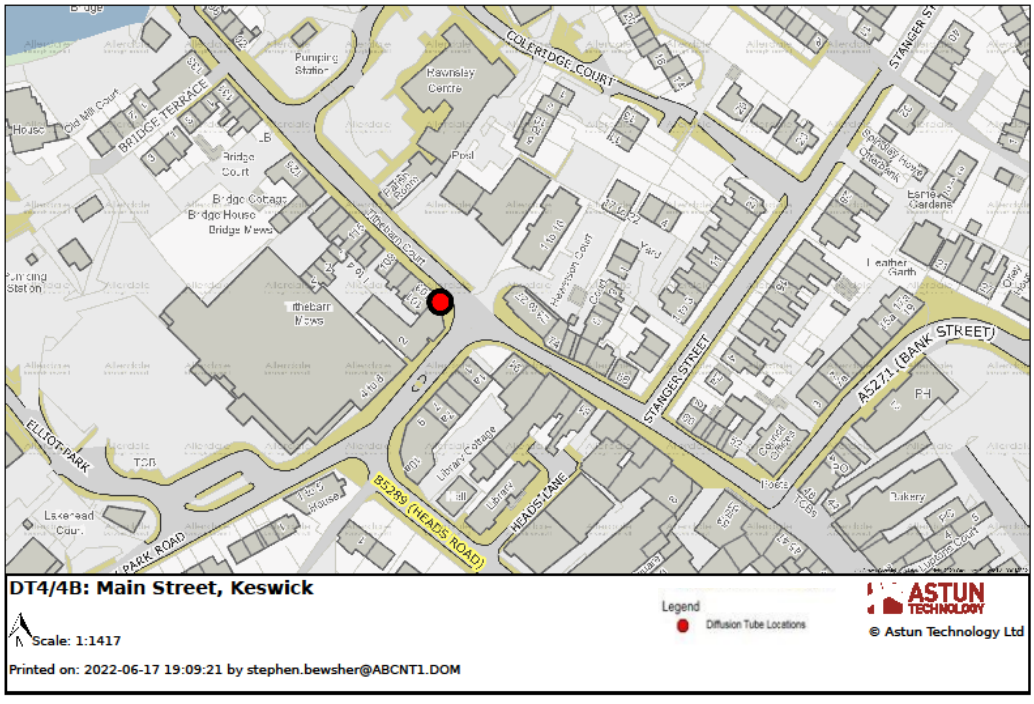

Figure D5: Presents a Map of DT4/4B monitoring location

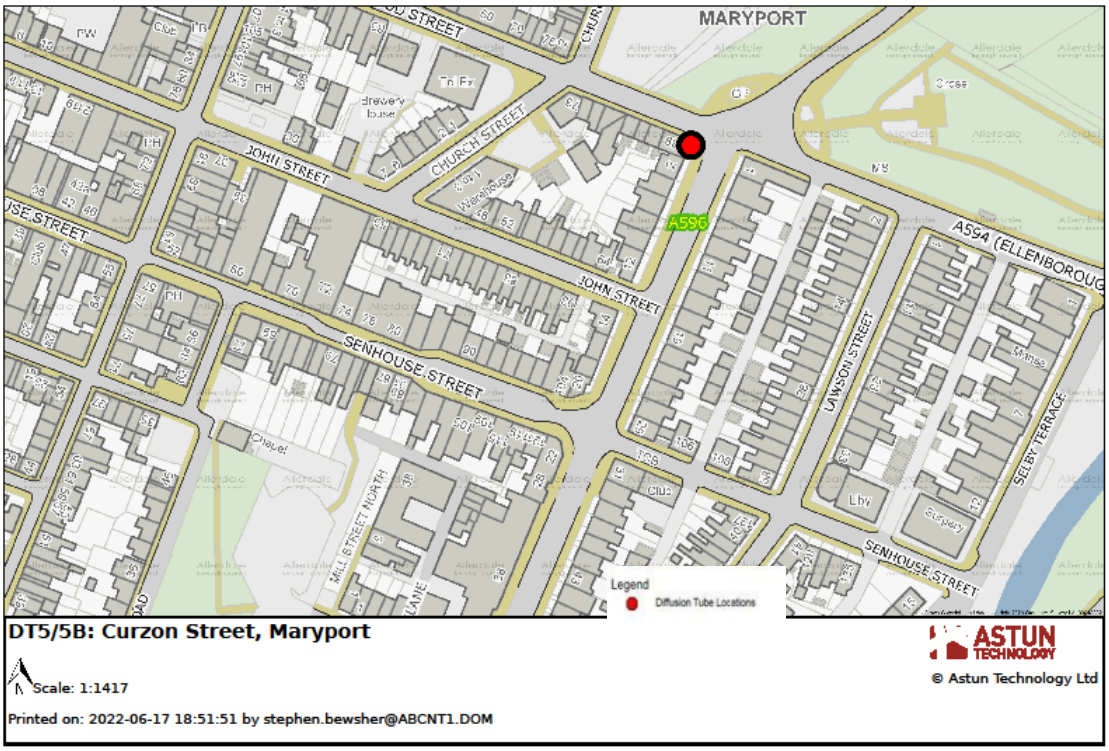

Figure D6: Presents a Map of DT5/5B monitoring location

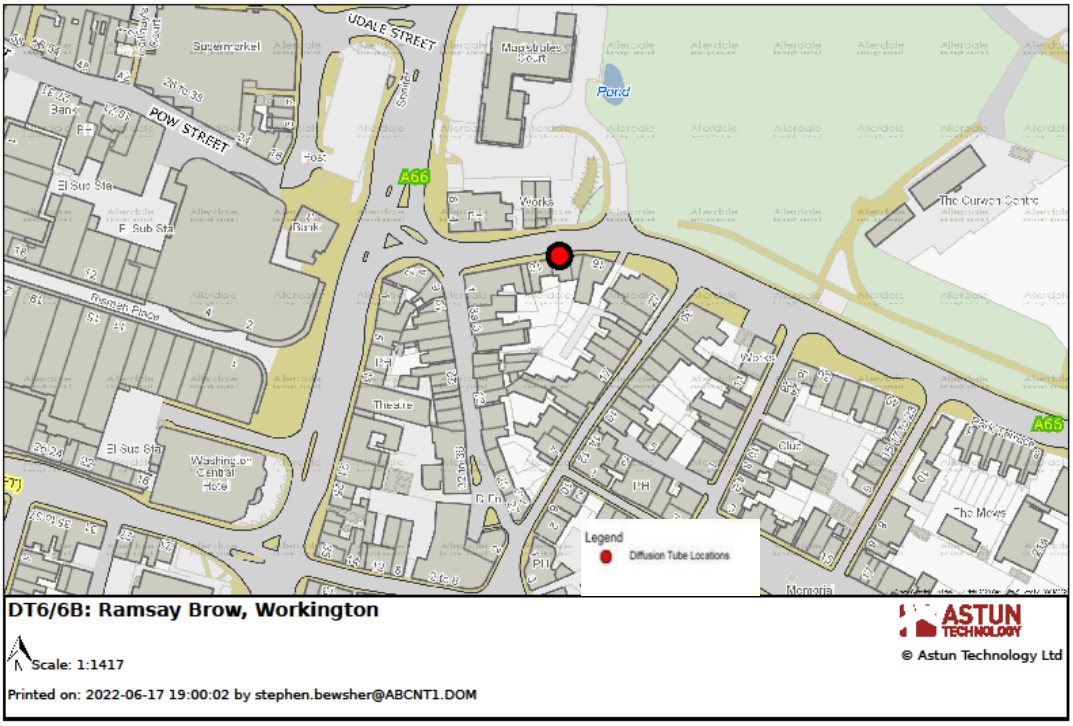

Figure D7: Presents a Map of DT6/6B monitoring location

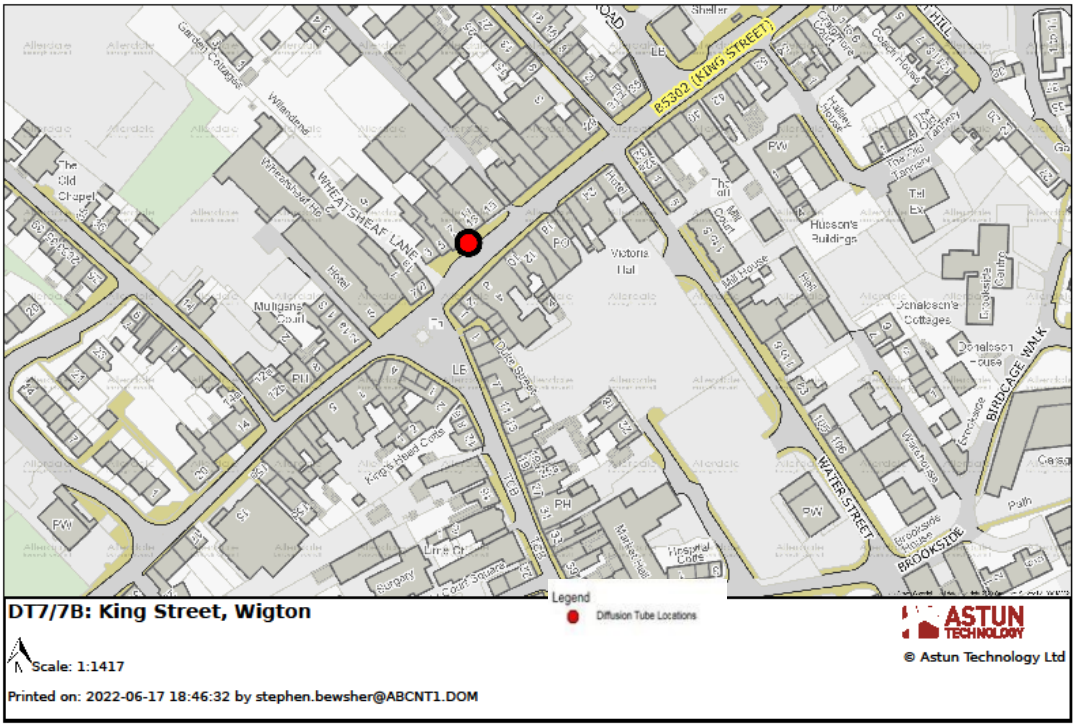

Figure D8: Presents a Map of DT7/7B monitoring location

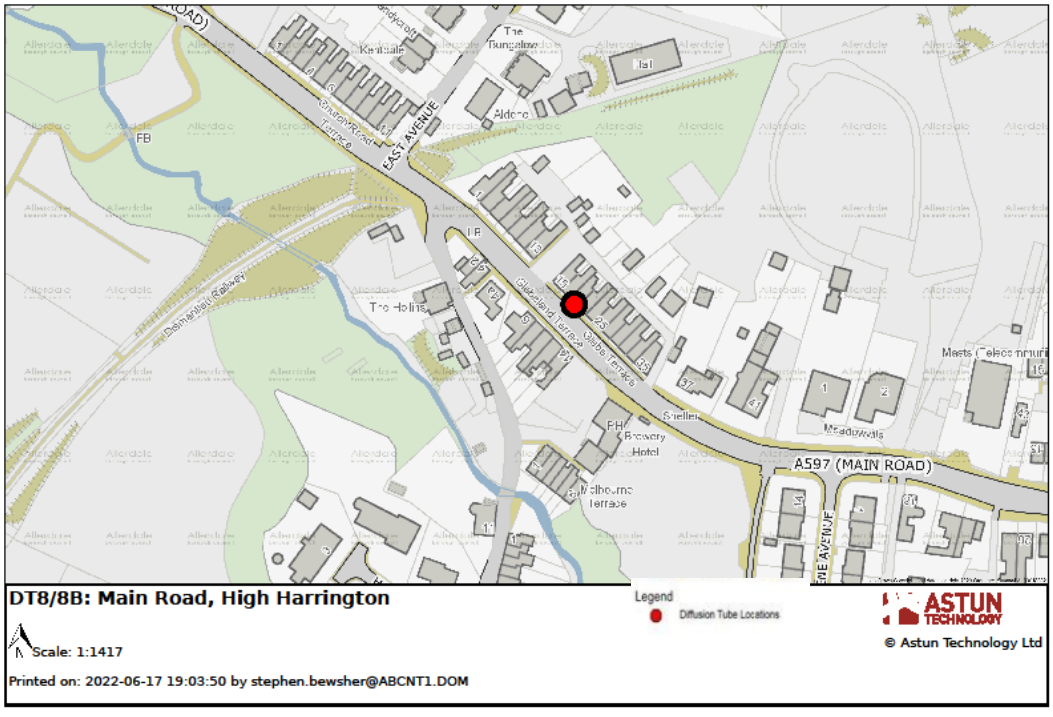

Figure D9: Presents a Map of DT8/8B monitoring location

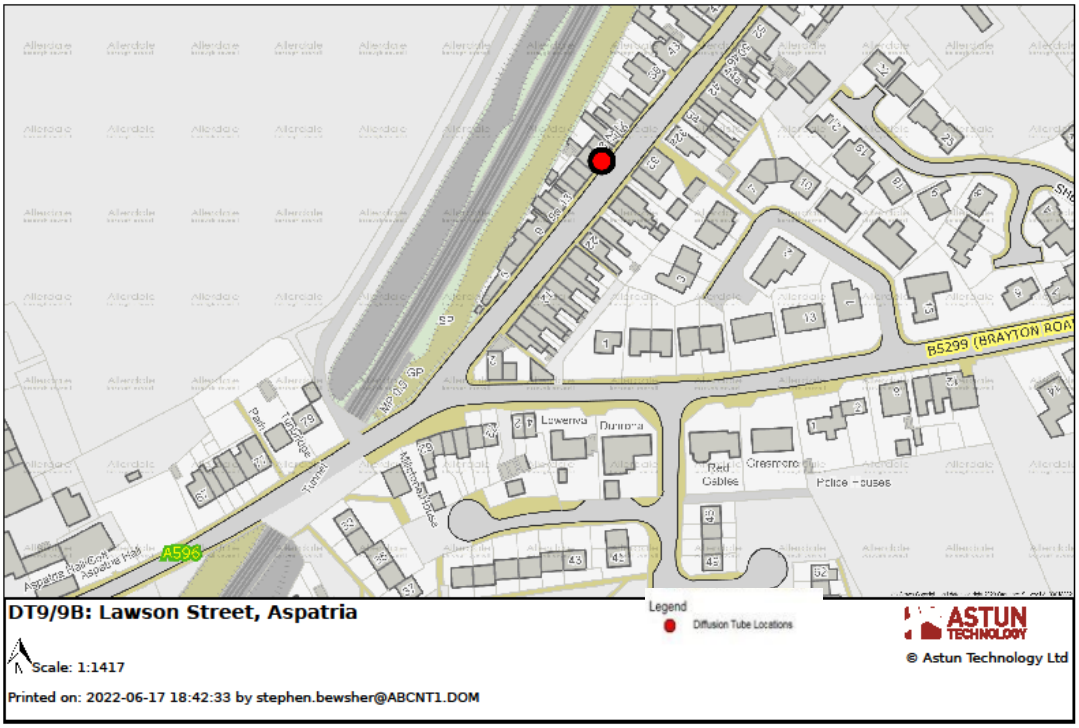

Figure D10: Presents a Map of DT9/9B monitoring location

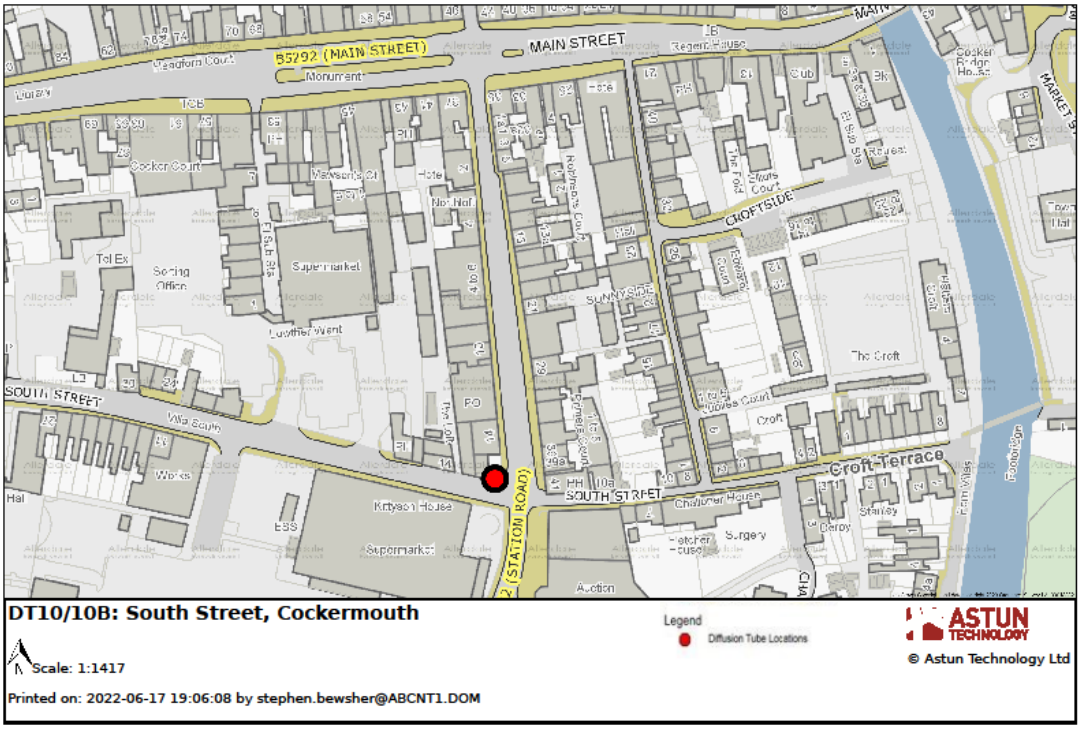

Figure D11: Presents a Map of DT10/10B monitoring location

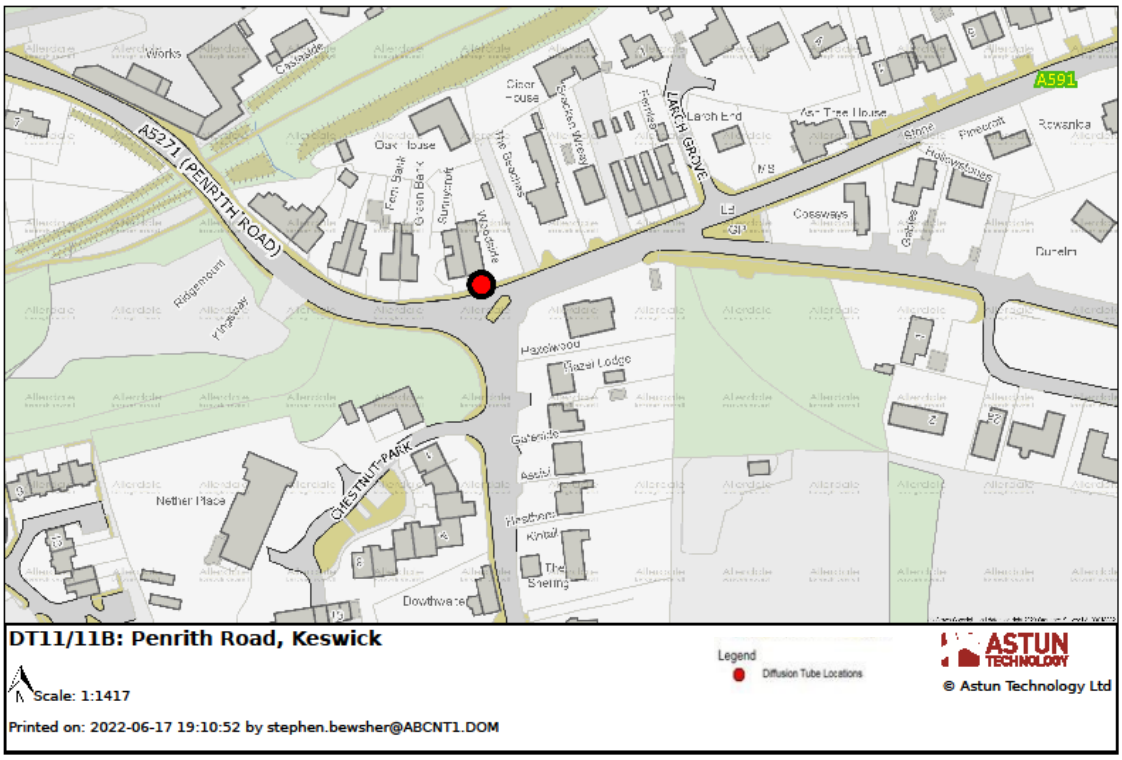

Figure D12: Presents a Map of DT11/11B monitoring location

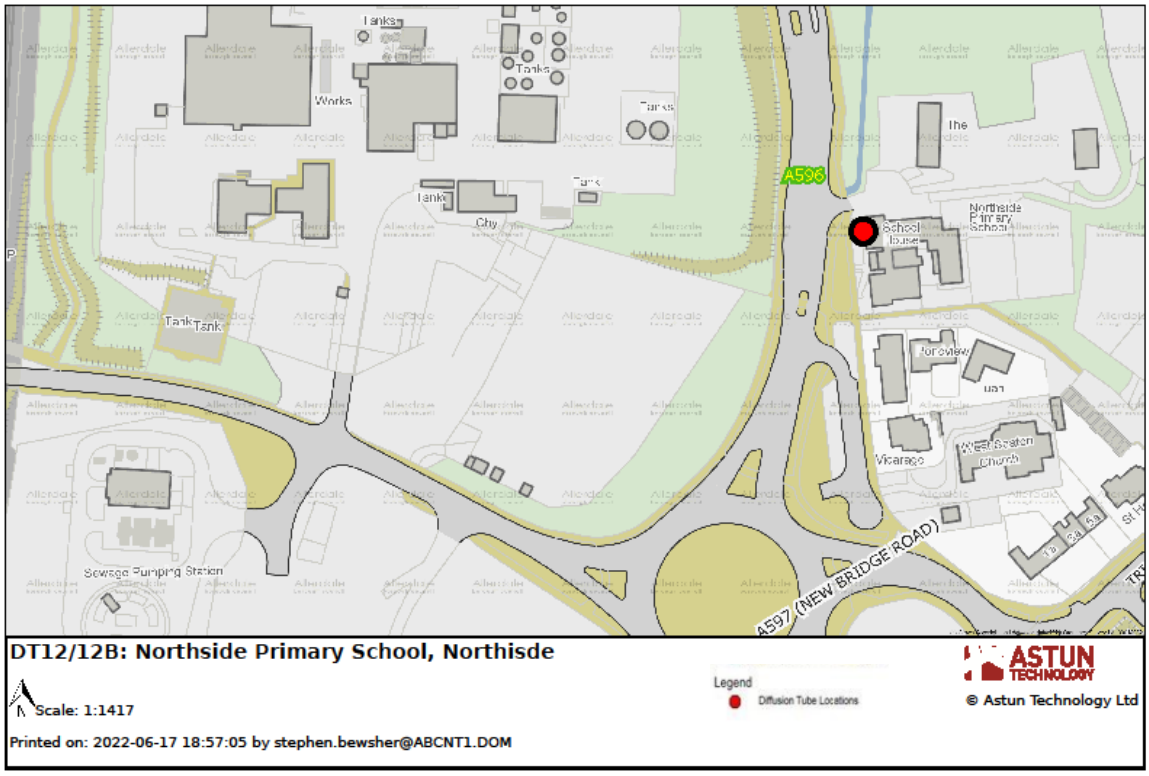

Figure D13: Presents a Map of DT12/12B monitoring location

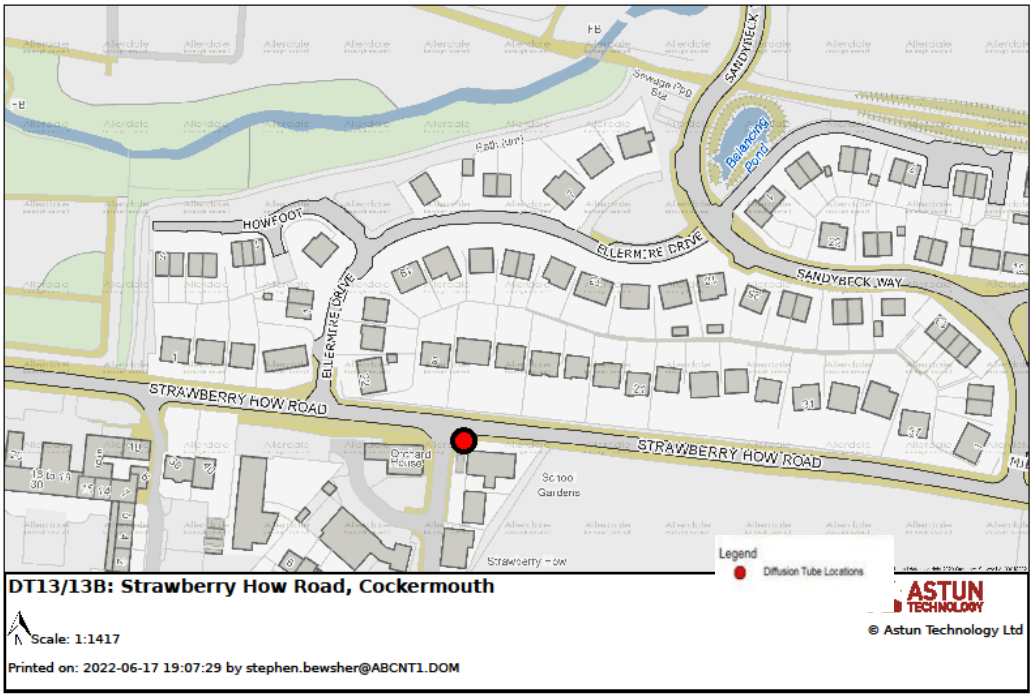

Figure D14: Presents a Map of DT13/13B monitoring location

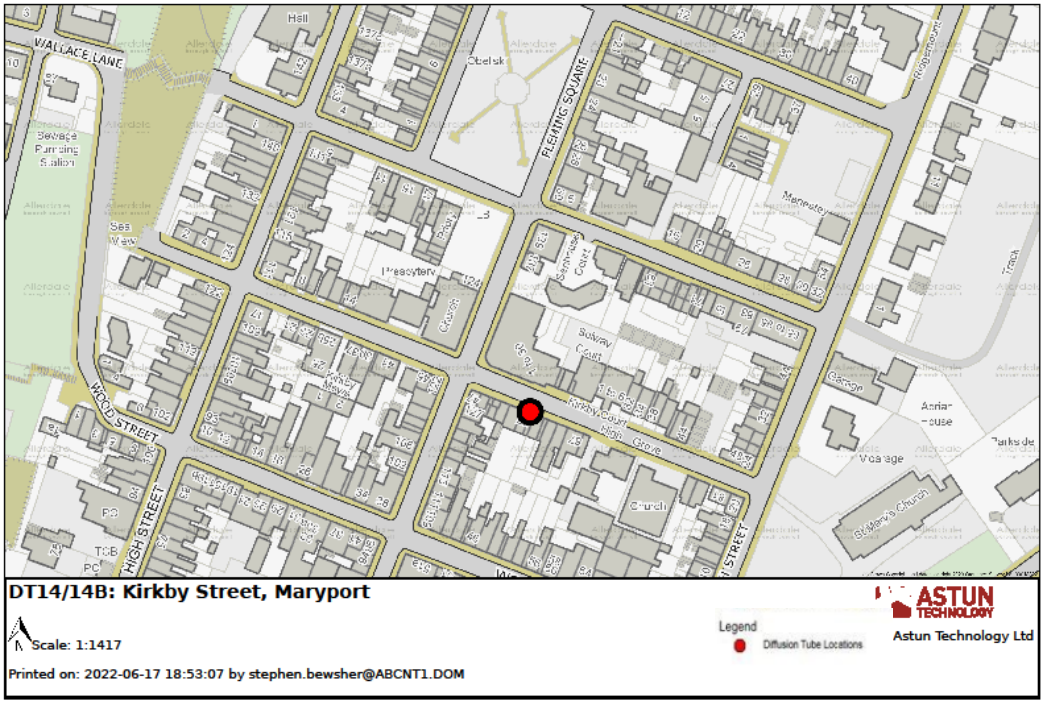

Figure D15: Presents a Map of DT14/14B monitoring location

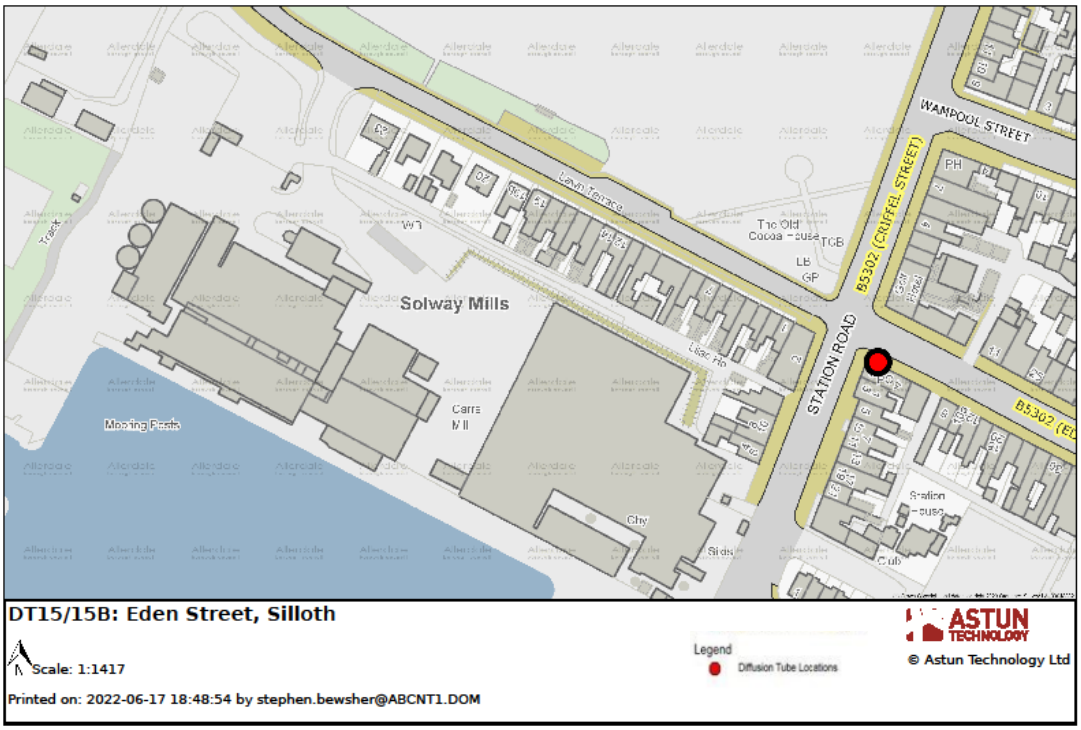

Figure D16: Presents a Map of DT15/15B monitoring location

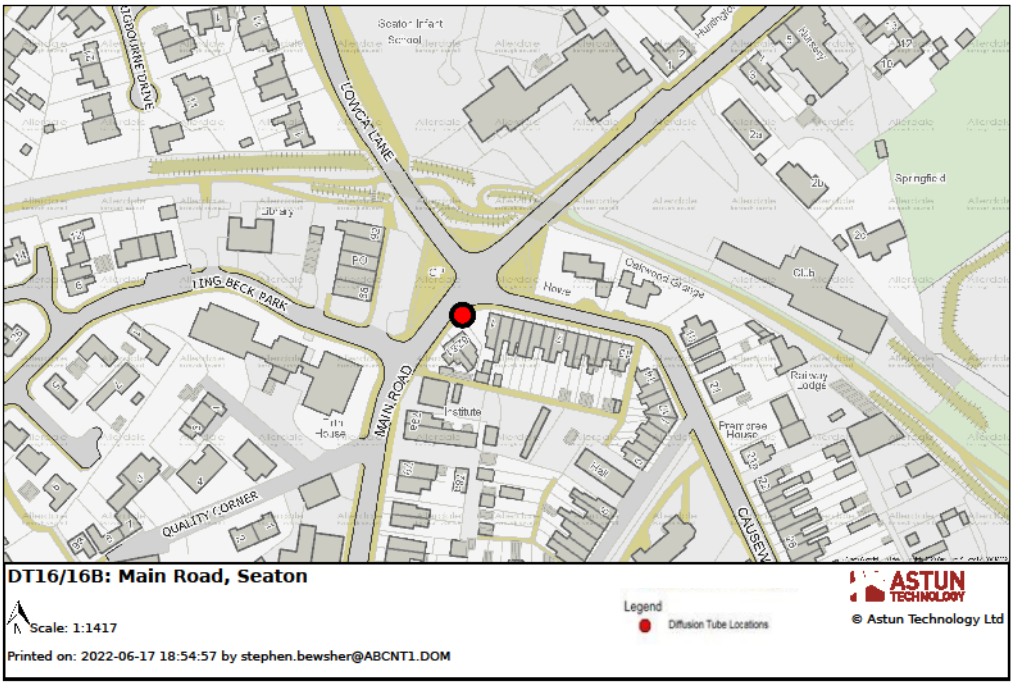

Figure D17: Presents a Map of DT16/16B monitoring location

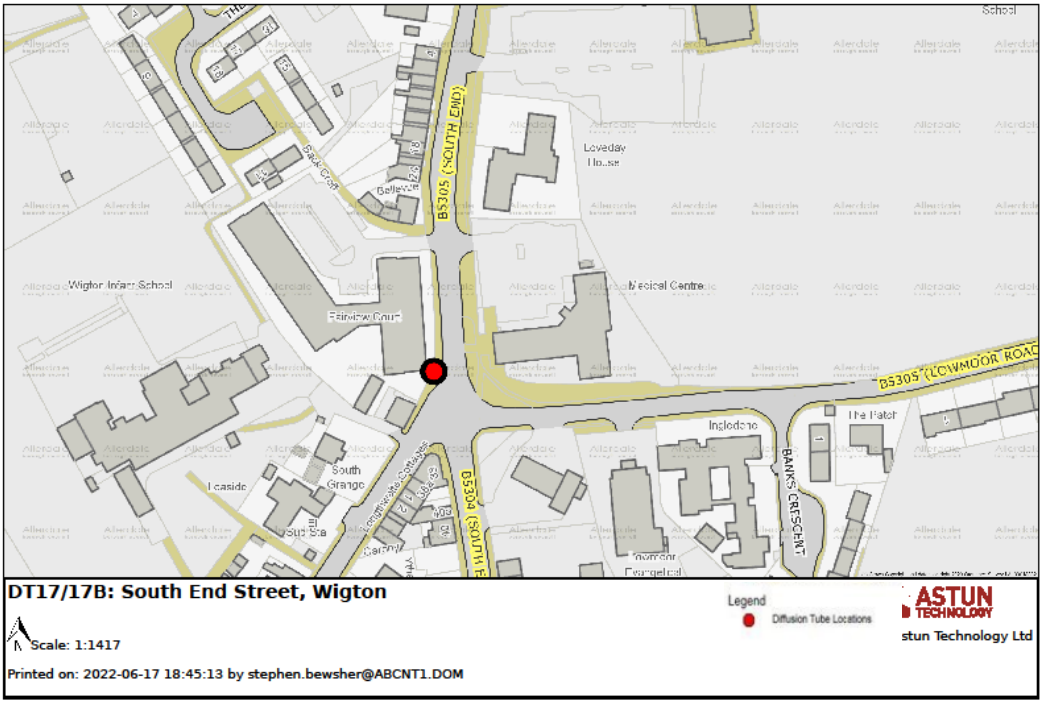

Figure D18: Presents a Map of DT17/17B monitoring location

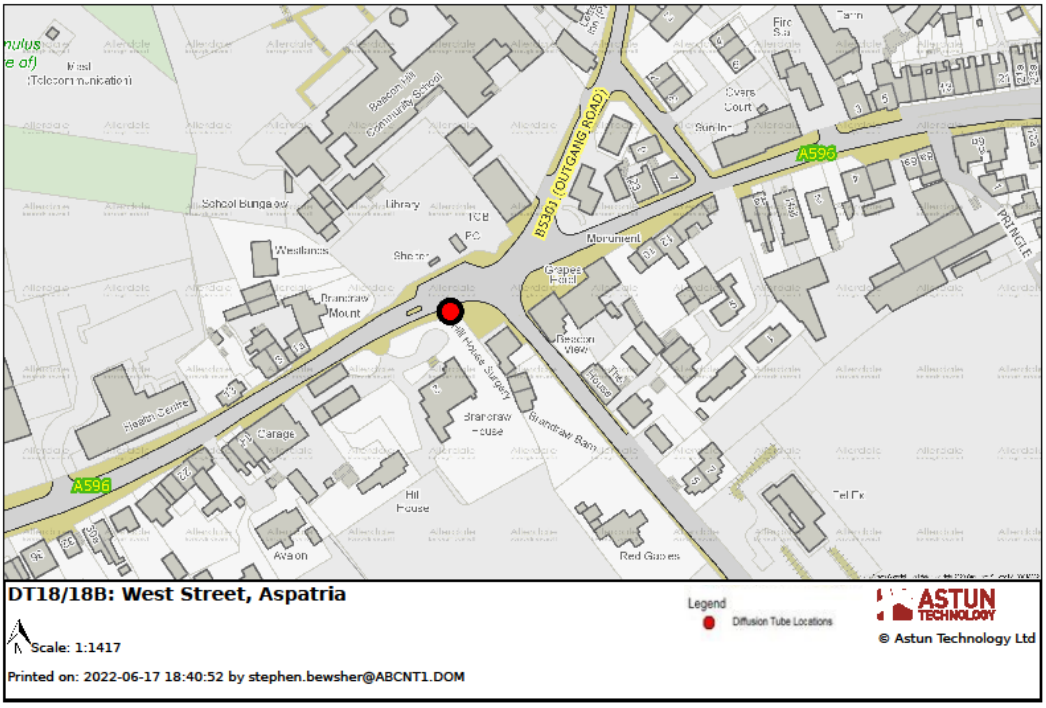

Figure D19: Presents a Map of DT18/18B monitoring location

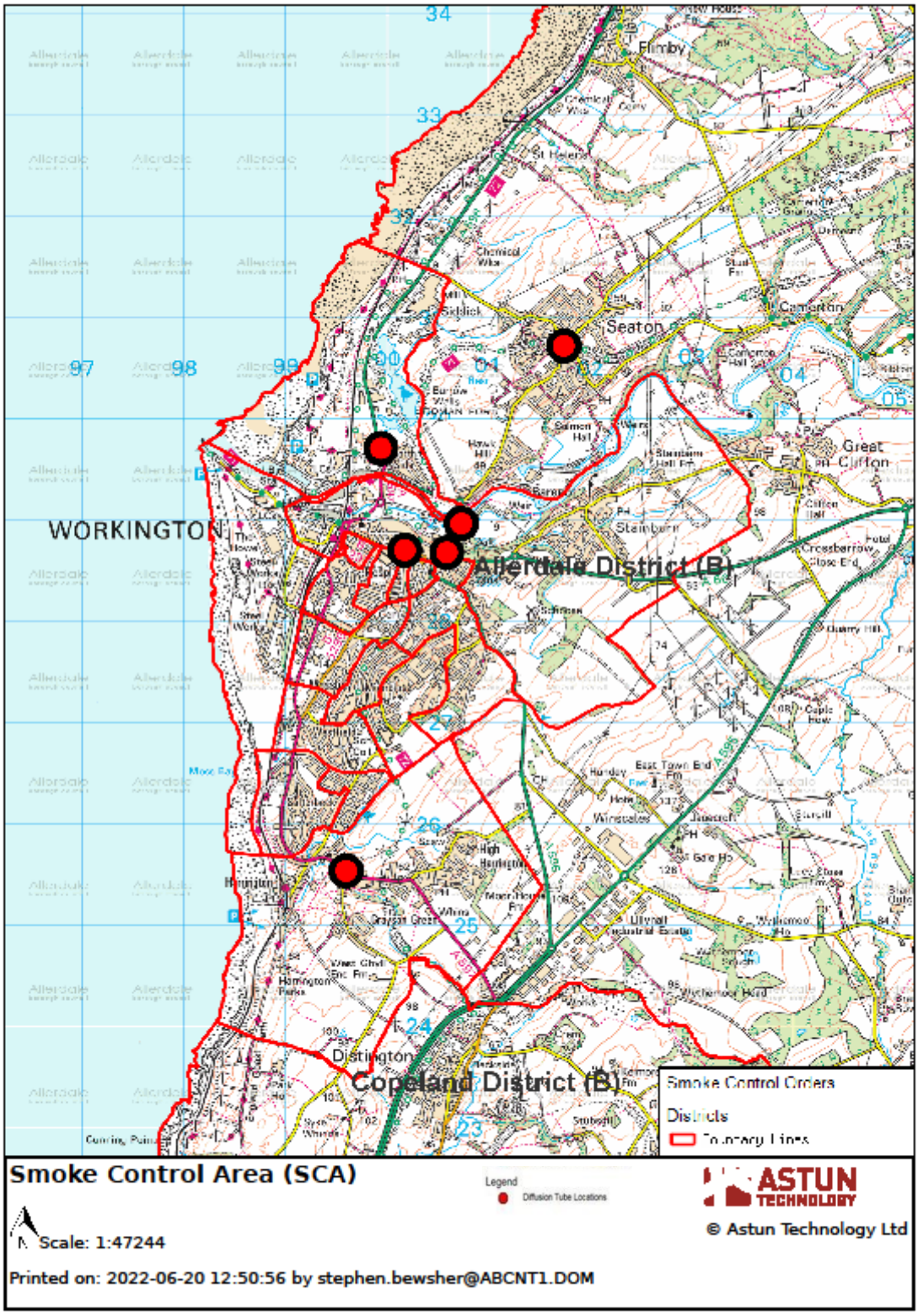

Figure D20: Presents a Smoke Control Area within the red boundary in relation to the nearby non-automatic (diffusion tube) monitoring locations.

Appendix E: Summary of Air Quality Objectives in England

Table E.1 – Air Quality Objectives in England[7]

Pollutant	Air Quality Objective: Concentration	Air Quality Objective: Measured as
Nitrogen Dioxide (NO_2)	200µg/m^3 not to be exceeded more than 18 times a year	1-hour mean
Nitrogen Dioxide (NO_2)	40µg/m^3	Annual mean
Particulate Matter (PM_{10})	50µg/m^3, not to be exceeded more than 35 times a year	24-hour mean
Particulate Matter (PM_{10})	40µg/m^3	Annual mean
Sulphur Dioxide (SO_2)	350µg/m^3, not to be exceeded more than 24 times a year	1-hour mean
Sulphur Dioxide (SO_2)	125µg/m^3, not to be exceeded more than 3 times a year	24-hour mean
Sulphur Dioxide (SO_2)	266µg/m^3, not to be exceeded more than 35 times a year	15-minute mean

[7] The units are in microgrammes of pollutant per cubic metre of air (µg/m^3).

Glossary of Terms

Abbreviation	Description
AQAP	Air Quality Action Plan - A detailed description of measures, outcomes, achievement dates and implementation methods, showing how the local authority 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
ASR	Annual Status Report
Defra	Department for Environment, Food and Rural Affairs
DMRB	Design Manual for Roads and Bridges – Air quality screening tool produced by National Highways
EU	European Union
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 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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