2021 Air Quality Annual Status Report (ASR)

In fulfilment of Part IV of the Environment Act 1995

Local Air Quality Management

Date: June, 2021

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Executive Summary: Air Quality in Our Area

Air Quality in Allerdale Borough Council

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 2020 monitoring of Nitrogen Dioxide was carried out in Allerdale via diffusion tube monitoring sites. The sites were positioned at 15 locations across Allerdale deemed to be most affected by road traffic pollution. As with previous years of monitoring the 2020 data demonstrates Nitrogen Dioxide levels are well below the national objectives. The observed overall trends for 2020 show significant reductions in levels of Nitrogen Dioxide in most areas in respect to the public health guidance to restrict movement regarding COVID-19.

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. Data from 2019 that has been collated and modelled by Public Health England (PHE) and shows Allerdale has the lowest human exposure to fine particulate matter (in the

[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 2020

[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

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 Public Health England 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 even more ambitious than EU requirements 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

In 2020, Allerdale Borough Council introduced a 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: https://wwwcloudfront.allerdale.gov.uk/media/filer_public/ce/53/ce5392c0-3366-4e92-b00a1a68328f3a26/council-strategy_2020-30_final.pdf.

The revised Action Plan to Address Climate Change has been widely consulted on and the comments received built into the plan which was submitted to Executive and endorsed at their April 2021 meeting. The working group is now commencing meetings of the task groups to advance and monitor delivery of the plan. In addition, through the Zero Carbon Cumbria Partnership, to make Cumbria the first carbon-neutral county in the UK by 2037, Allerdale Borough Council is addressing the outcomes of the carbon audit for Cumbria.

In July 2020, the Local Plan 2 was adopted which identifies or allocates land to support delivery of Local Plan (Part 1) and contains supporting policies to guide development. The Allerdale Local Plan (Part 1) sets out the strategic and development management planning policies for the district whereby air quality is an important consideration with planning applications. More information is here: https://www.allerdale.gov.uk/en/planning-building-control/planning-policy/.

Allerdale Borough Council recognises 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.

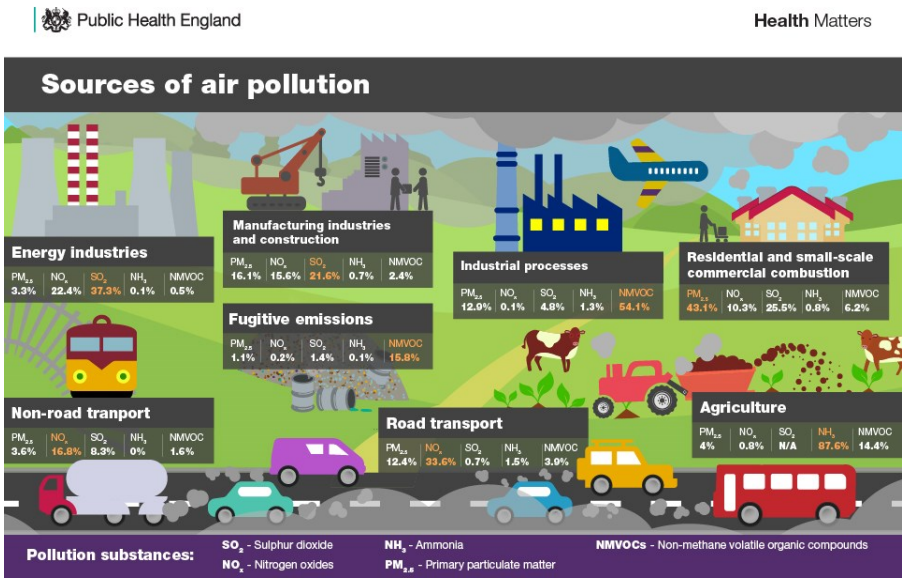

Image 1: Presents an image of the sources of air pollution

(Public Health England 2018)

New legislation in May 2021 which introduces the banning 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/.

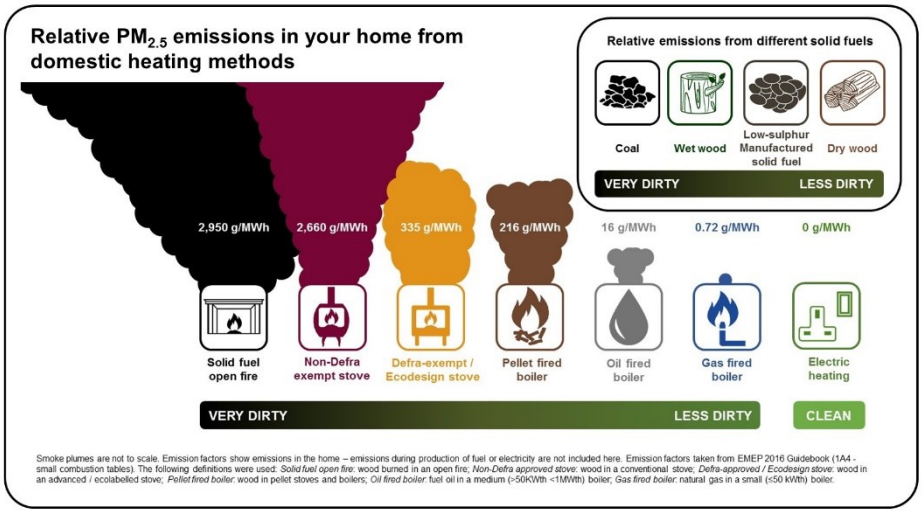

Image 2: Presents an image of the relative particulate emissions inside your home from different heating methods (Defra 2018)

Due to COVID-19 Allerdale Borough Council rearranged their plans for Clean Air Day and hosted a Walk Allerdale Challenge in line with public health guidance during October 2020 as part of Allerdale's Health and Wellbeing Week. 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. 76 miles were recorded to have been walked across Allerdale in line with public health guidance. Communications were made via newsletters with an uptake of 2000 people and 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. Preparations are currently ongoing for Clean Air Day 2021 which will be reported in the following reporting year.

We're Allerdale
Aspatria Cockermouth Keswick Maryport
Silloth Wigton Workington

CleanAirDayLive

'Walk Allerdale'

Image 3-6: Clean Air Day 2020 posters across Keswick Market, Wigton Local Link Office, Workington Library and Walk Allerdale campaign.

Image 7. Left presents: A66/Cumbria way (Keswick); Image 8. Right presents: Bike Box Line at B5297 Junction (Vulcans Lane, Workington)

The Emergency Active Travel Fund has supported the introduction of long term road infrastructure improvements. Such as the introduction of a cycle lane from the A66 into Keswick and the introduction of bike box junctions to encourage cycling across Allerdale. More information is available here: https://cumbria.gov.uk/roads-transport/activetravel.asp.

Allerdale Waste Services cover refuse waste collections for the Allerdale region. In terms of Fleet vehicles, 18 of the vehicles are owned by Allerdale Waste Services that meet Euro 6 Emissions Standards. There are another 8 vehicles hired by the Allerdale Waste Services Company. 4 of these are Euro 6 with the other 4 being Euro 5 Emissions standards. 2 small pedestrian electrical sweepers are in use and battery powered equipment is being trialled by Tivoli, the grounds maintenance provider. With the intention to continue to implement these changes within the following years to achieve their goal of using more battery powered handheld equipment. At the time of writing, Tivoli currently has 11 fleet vehicles that meet Euro 6 Emission Standards and a further 9 fleet vehicles that meet Euro 5 Emissions Standards. By completing this measure, it is it is anticipated that such attempts will reduce air pollution, emissions and improve Tivoli's carbon footprint.

Conclusions and Priorities

Overall, the results from 2020 show 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. Many monitoring locations have experienced major reductions in NO_2 levels during 2019, in particular at Penrith Road, Keswick and Main Street, Keswick with a reduction of 9.1 µg/m^3 compared to 2019 results for Penrith Road, Keswick (See Table A.4.). Relatively minor reductions in NO_2 levels have occurred at Northside Primary School and Hall Park View, Workington. 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 2020. 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.

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, review the data from 2020 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 by the introduction and decommissioning of new monitoring sites in relation to increased road traffic and rail traffic associated with future and planned developments.

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. A Climate Change Action Plan is being developed and was open to the public for consultation until April 2021.

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

• Where possible consider public transport, walking, or cycling to reduce emissions. 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/

• If purchasing a car, consider a vehicle with the lowest exhaust emissions and the electronic car grants available: https://www.gov.uk/plug-in-car-van-grants

• 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/

• Make clean air decisions in your home. From 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/

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

• Businesses and the community interested in future Clean Air Day events please contact to register your interest: 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 during 2020. 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.2

2 Actions to Improve Air Quality

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 AQMAs. Allerdale Borough Council has not identified from monitoring in 2020 or previous years any exceedance of the air quality objective and therefore no AQMAs have been declared. For reference, a map of Allerdale Borough Council's monitoring locations is available in Appendix D.

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

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.

The trend graphs provide clear comparison with the air quality objective.

The detailed maps clearly demonstrate the monitoring network.

Appropriate QA/QC for the diffusion tube monitoring is provided. A national bias adjustment factor of 0.75 is used. Annualisation and distance correction were not required.

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.

The report references the Public Health Outcomes Framework and a number of measures to reduce $PM_{2.5}$ emissions, this is encouraged to continue.

The Council is constantly reviewing the monitoring strategy to identify possible new areas of concern, which is great to see. The inclusion of background monitoring sites for the 2020 reporting year is also welcomed.

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

Allerdale Borough Council has taken forward a number of direct measures during the current reporting year of 2020 in pursuit of improving local air quality. Details of all measures completed, in progress or planned are set out in Table 2.1. 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 2020 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 2020.

• 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.

• 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 background sites established in Cockermouth and Maryport.

• Media communications within the Borough regarding indoor air pollution and principle of reducing public exposure to air pollution in line with the 2019 Clean Air Strategy.

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 stall 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 display air quality information in light of the 2019 Clean Air Strategy and any new air quality legislation.

• 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 with a series of recommendations issued. By March 2020 a portfolio holder has been appointed and work has started to establish a Climate Change Group to update Allerdale Borough Council's Climate Change Strategy and Action Plan

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

• Deliver a successful Clean Air Day 2021 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.

• 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 the upcoming Environmental Bill.

• 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.

• Support air quality education within specific schools.

• Continue to work towards the agreed Climate Change Motion and the work that has started to establish a Climate Change Group to update the Climate Change Strategy and Action Plan.

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

• Funding issues regarding key national infrastructure projects some of which are now on hold.

• Allerdale Borough Council is a two-tier Borough Council with County Council, however we continue to work together to improve air quality within Allerdale.

• 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.	Measures	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 Implementations
1	Annual Review of air sampling points for Nitrogen Dioxide	Policy Guidance and Development Control	Air Quality Planning and Policy Guidance	2019	2020	Local Authority Environmental Health, Local Authority Transport Dept.	Local Authority	NO	Fully funded	To be confirmed	Implementation		Evidence based variation in sampling points.	Implementation on 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	2019	2020	Local Authority Environmental Health, Local Authority Planning. Other Planning Authorities. Local Authority Transport Dept.	Local Authority and other organisations	NO	Partially Funded	To be confirmed	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. In 2020 Allerdale Borough Council received 9 planning applications decided as major. Air quality assessments have been required for developments including potentially polluting industrial applications. Industrial	Funding

														applications, combined heat and power systems or other combustion method energy production such as gas turbine or biomass boilers.	
3	Reducing levels of PM 2.5	Public Information	Via other mechanisms	2019	2020	Local Authority Environmental Health, Local Authority Transport Dept, Planning Authorities.	N/A	NO	Partially Funded	To be confirmed	Implementation			Implementation on-going	Targeting off grid areas using solid fuels and smoke control area.
4	Reducing ammonia emissions from farming	Policy Guidance and Development Control	Air Quality Planning and Policy Guidance	2019	2020	Local Authority, Defra, Natural England and Other Organisations	UK Government	YES	Partially Funded	To be confirmed	Implementation	Ammonia and secondary PM 2.5 emissions	Individual merit and individual applications received working 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 in relation to the spreading of sewage	

														sludge and operation of Permitted Agricultural activities. With updates to Air Quality webpages to provide guidance.	
5	National Infrastructure Projects	Policy Guidance and Development Control	Air Quality Planning and Policy Guidance	2016	2022	United Utilities	United Utilities	NO		To be confirmed	Implementation			Progress is ongoing on this infrastructure development across the area.	
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		To be confirmed	Planning			Under Review	
7	National Significant Infrastructure Project	Policy Guidance and Development Control	Air Quality Planning and Policy Guidance	2015		Moorside Project and Partner Organisations	Moorside Project and Partner Organisations	NO		To be confirmed	Planning			Under Review	
8	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		To be confirmed	Planning			On hold	Subject to construction of other tidal lagoon projects.
9	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	2019	2020	Allerdale Borough Council and Environment Agency	Allerdale Borough Council	NO	Funded	To be confirmed	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 2020 and no unexpected air pollution incidents have been recorded	

10	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		To be confirmed	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 was adopted by Full Council in July 2020 and identifies or 'allocates' land to deliver the strategy and contains additional supporting policies to guide development.
11	Adopted Local Policy Section 22 - Sustainable Travel Choices	Transport Planning and Infrastructure	Other	2014	2029	Allerdale Borough Council	Allerdale Borough Council	NO		To be confirmed	Implementation		Key objective of spatial planning is to ensure that jobs, housing, shopping, leisure and services are accessible by public transport, walking and cycling.		Local Plan 1 sets plans for land in Allerdale outside of the Lake District National Park. Local Plan 2 was adopted by Full Council in July 2020 and identifies or 'allocates' land to deliver the strategy and contains additional supporting policies to guide development.

12	Adopted Local Policy Section 21 - Developer Contribution	Policy Guidance and Development Control	Other Policy	2014	2029	Allerdale Borough Council	Allerdale Borough Council	NO		To be confirmed	Implementation		Community Infrastructure Levy (CIL) is currently 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 was adopted by Full Council in July 2020 and identifies or 'allocates' land to deliver the strategy and contains additional supporting policies to guide development.
13	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		To be confirmed	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 was adopted by Full Council in July 2020 and identifies or 'allocates' land to deliver the strategy and contains additional supporting policies to guide development.

14	Allerdale Travel Hierarchy	Promoting Travel Alternatives	Workplace Travel Planning	2018		Allerdale Borough Council	Allerdale Borough Council	NO		To be confirmed	Implementation		Promotion of use of Allerdale's electric car. Reduction in private vehicle mileage and associated pollutant impacts of PM and NO2 etc.		
15	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		To be confirmed	Implementation		Two small pedestrian electrical sweepers are now in use and battery powered equipment by Tivoli, the grounds maintenance provider. With the intention to continue to implement these changes within the following years to achieve their goal of using more battery powered handheld equipment. By completing this measure, it is it is anticipated that such attempts will significantly reduce air pollution and emissions.		

16	Cycle to work	Promoting Travel Alternatives	Promotion of cycling	2017		Allerdale Borough Council	Allerdale Borough Council	NO		To be confirmed	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.
17	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	2019	2020	Local Authority Environmental Health	Local Authority Environmental Health	NO		To be confirmed	Implementation	Figures have increased during 2019/2020	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 2020 with services reduced.

18	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		To be confirmed	Implementation				A review of traffic restrictions are continuing for this area. Funding from the Emergency Active Travel Fund was used during 2020.
19	Air Quality Bids for funding	Policy Guidance and Development Control	Other policy	2019	2020	Allerdale Borough Council and Defra	Allerdale Borough Council and Defra	NO		To be confirmed					
20	Promote and encourage the Home Working Policy	Promoting Travel Alternatives	Encourage / Facilitate home-working	2019	2020	Allerdale Borough Council	Allerdale Borough Council	NO		To be confirmed			Decreases in the amount of travel undertaken to main Offices where Council functions can be carried out remotely.		The Programme and Projects Team have been working on a Hybrid Working project which will mean that the Council will adopt a fully hybrid working model. The HR Team is currently in the process of drafting a Hybrid Working Policy. This policy will replace the Homeworkin g Policy.
21	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	2020	Highways Authority	Highways Authority	NO	Funded	To be confirmed		Indirect reduction anticipated in NO2, PM10 and PM2.5		Social Distancing requirements required streets in Cockermouth and Workington to be widened. Bike box junctions across the District in main towns was introduced in	Economic barriers

														addition cycle network improvements connecting towns such as Keswick was also introduced as a long term measure.	
22	Complete Solway Cycle Path part of the National Cycle Network (Hadrian's Cycleway)	Promoting Travel Alternatives	Promotion of cycling	2015	2021	Allerdale Borough Council, Silloth -on-Solway Coastal Community Team and a combination of public, private and community partners	MHCLG's Coastal Communities Fund and DEFRA's Rural Development Programme for England	NO	Funded	To be confirmed	Completed		Promote active travel for healthy and active lifestyles.	Construction works are on track to be completed. To be officially opened in Summer 2021.	
23	Allerdale Borough Council - Visit Allerdale Tourism	Public Information	Via other mechanisms	2018		Allerdale Borough Council - Visit Allerdale	Allerdale Borough Council - Visit Allerdale	NO	Funded	To be confirmed			Public perception of issues associated with tourism and air quality.	Ongoing continual review to webpages and promotion of air quality at events.	
24	Allerdale Borough Council Events Policy	Policy Guidance and Development Control	Air Quality Planning and Policy Guidance	2020		Allerdale Borough Council Visit Allerdale Events Team	Allerdale Borough Council Visit Allerdale Events Team	NO		To be confirmed			Promote and support events more sustainably.	Ongoing	
25	Cold to Cosy Homes	Other	Other	2019		Allerdale Borough Council Housing Authority and CAfS	Allerdale Borough Council Housing Authority and CAfS	NO	Funded	To be confirmed	Implementation		Number of promotions.	Ongoing	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
26	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	To be confirmed	Implementation		Number of entries made.	Ongoing	To support the UK Plan for tackling roadside nitrogen dioxide concentrations and the development of Clean Air Zones
27	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			To be confirmed					Air Quality Bid by Cumbrian MPs to Department of Transport Ideas Fund to improve provision of public transport across Cumbria including areas in Allerdale
28	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			To be confirmed	Implementation		Number of promotions, education and engagement.	Ongoing	Due to COVID19 Clean Air Day took place in October 2020. Plans for Clean Air Day are underway for June 2021.

29	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			To be confirmed	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 environment ally responsible use of solid fuels and wood for stoves and boilers.
30	Allerdale Borough Council's Procurement Strategy	Policy Guidance and Development Control	Sustainable Procurement Guidance	2020		Allerdale Borough Council and other Local Authorities through Effective Procurement in Cumbria	Allerdale Borough Council and other Local Authorities through Effective Procurement in Cumbria			To be confirmed	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.

$PM_{2.5}$ – 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 4.5 µg/m^3 compared to the North West England average of 7.9 µg/m^3 and the England average of 9 µg/m^3 (Public Health Outcomes Framework 2019).

With the absence of $PM_{2.5}$ and PM_{10} 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. This exercise identified an annual mean concentration of 6.4 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.

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 will act upon recommendations provided by the Climate Change Task and Finish Group regarding the Climate Change Motion. As well as continue with the work that has started to establish the Climate Change Group to update the Climate Change Strategy and Action Plan.

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

This section sets out the monitoring undertaken within 2020 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 2016 and 2020 to allow monitoring trends to be identified and discussed (Figure A.1).

Summary of Monitoring Undertaken

3.1.1 Non-Automatic Monitoring Sites

Allerdale Borough Council undertook non- automatic (i.e. passive) monitoring of NO_2 at 15 sites during 2020. Table A.1 in Appendix A presents the details of the non-automatic sites.

Table A.1 in Appendix A shows the details of the sites Allerdale Borough Council demonstrated no exceedances from monitoring undertaken in previous monitoring years of 2019 and 2018. The 2020 annual monitoring results are well within the national objectives for Nitrogen Dioxide (NO_2). 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 2016-2020. 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.

Changes during the reporting year (2020) included:

DT13/13B Strawberry How Road, Cockermouth

Strawberry How Road has been identified in relation to future increase road traffic associated with new planned developments and possible infrastructure developments. In addition, Strawberry How Road provides a suburban background monitoring location in line with TG16.

DT14/14B Kirkby Street, Maryport

The introduction of an urban background monitoring location has been identified. This is in line with TG16. It is felt the identification of this monitoring site is appropriate in particular due to planned regeneration development of Maryport and satisfies Allerdale's approach to monitoring pollution levels.

DT15/15B Lawn Terrace, Silloth

The introduction of an industrial background monitoring location has been identified. This is in line with TG16. It is felt that this residential and tourist area is where members of the public (receptors) might be regularly exposed to. In particular there is potential industrial sources of NO_2 and Silloth Port in accordance with the 2019 Clean Air Strategy.

Planned changes for 2021 monitoring:

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 will be taken due to a review of the data provided in 2020 and Allerdale's approach to monitoring.

Introduction to monitoring for 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.

Introduction to monitoring for South End, Wigton

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 Wigton towards the B5304 and B5305 junction.

Introduction to monitoring for 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.

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.

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 33%), and distance correction. Further details on adjustments are provided in Appendix C.

3.1.2 Nitrogen Dioxide (NO_2)

Table A.4 in Appendix A compares the ratified and adjusted monitored NO_2 annual mean concentrations for the past 5 years with the air quality objective of 40µg/m^3. Note that the concentration data presented in Table A.2 represents the concentration at the location of all monitoring sites, following the application of bias adjustment and annualisation where required (i.e. the values are exclusive of any consideration to fall-off with distance adjustment).

For diffusion tubes, the full 2020 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 A2 there are no exceedances of the lower annual objective for Nitrogen Dioxide of 40µg/m^3 at any of the 15 monitoring sites during 2020. As sites are situated for worst case scenario in close proximity to the pollutant source (road traffic).

From previous discussions with Local Air Quality Management helpdesk 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 28.5 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. 10 months of diffusion tube data was collected with 10 months being duplicate data, indicating good precision. For 2020, the data demonstrated an annual bias adjusted mean of 13 μg/m^3 a decrease of 3.2 μg/m^3 from 16.2 μg/m^3 from the previous reporting year.

DT2/2B Murray Road, Workington

This is an urban centre monitoring location 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 9 months being duplicate tube data, the annual bias adjusted mean recorded was 21.6 μg/m3 25μg/m^3 . This figure of 21.6μg/m^3 is the second highest Nitrogen Dioxide annual mean concentration in Allerdale for 2020. However this data shows a reduction of 3.4 μg/m^3 from 2019 followed by 2.4μg/m^3 reduction in 2018; indicating a steady reduction of the Nitrogen Dioxide annual mean concentrations at this site.

DT3/3B Crown Street, Cockermouth

Due to historic limited data collection challenges a revised monitoring location at a similar local monitoring point facing the B5292 at Crown Street, Cockermouth was established. In line with TG16, this location has been repositioned in 2019 towards Gote Road Bridge and has proven to be a secure location during 2020. 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 years. For 2020 the annual bias adjustment for this location was 15 μg/m^3, a 4.8μg/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 towards the Borrowdale Valley. 12 months of diffusion tube data was collected with 9

months being duplicate tube data. The annual bias adjustment recorded a nitrogen dioxide annual mean concentration for this location was 18.4μg/m^3 a reduction of 7.1μg/m^3 from 2019 and is the fifth highest Nitrogen Dioxide annual mean concentration in Allerdale for 2020. Whereas in 2019 this location had the second highest Nitrogen Dioxide annual mean concentration across Allerdale.

DT5/5B Curzon Street, Maryport

This is a kerbside location situated to a busy 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 19.7μg/m^3. In comparison to previous monitoring years, the data shows a reduction of 4.2μg/m^3 from 2019 and 1.3μg/m^3 from 2018, indicating a steady reduction of the Nitrogen Dioxide annual mean concentrations at this site

DT6/6B Ramsay Brow, Workington

This is a kerbside location located at a receptor façade along the A66 in close proximity to the traffic lights controlled at the A596 junction. These are two 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 9 months of duplicate data. This is the highest overall Nitrogen Dioxide annual mean concentration in Allerdale for 2020, however the annual bias adjustment of 22.4μg/m^3 which is a decrease of 6.1μg/m^3 to 2019's result of 28.5 μg/m^3 .

DT7/7B King Street, Wigton

This is the longest monitoring location for Allerdale situated on a High Street in Wigton since monitoring began. For 2020, 12 months of diffusion tube data was collected with 11 months of duplicate data. The data for 2020 calculated an annual bias adjusted mean of 19.9μg/m^3 the third highest reading for 2020. This annual mean concentration is a decrease of 3.8μg/m^3 from 2019's result of 23.7μg/m^3 - in which had witnessed an increase of 0.3μg/m^3 during 2018's annual mean concentration.

DT8/8B Main Road, Harrington

This is a kerbside location 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 indicates a need to continue to monitor at this location. 10 months of diffusion tube data was collected with 10 months of duplicate data, indicating good precision. The data for 2020 demonstrated an annual bias adjustment mean of 12.6 $\mu g/m^3$ a reduction of 3.6$\mu g/m^3$ compared to the monitoring results in 2019.

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 10 months of duplicate data, indicating good precision. For 2020 the annual adjusted mean recorded was 13$\mu g/m^3$ a 3$\mu g/m^3$ reduction from 2019's annual mean concentrations for Nitrogen Dioxide.

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. This location has not been relocated but renamed to South Street due to its location for 2021 onwards. 10 months of diffusion tube data was collected with 8 months of duplicate data, indicating good precision. The annual bias adjustment recorded a nitrogen dioxide annual mean concentration of 12.5$\mu g/m^3$ a 4$\mu g/m^3$ reduction from 2019 data for this location.

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 11 months of duplicate data. The data for 2020 demonstrated an annual bias adjustment mean of 13.1$\mu g/m^3$ a reduction of 9.1$\mu g/m^3$ compared to 2019 data for this location.

DT12/12B Northside Primary School, Northside

This monitoring location is situated at the façade of Northside Primary School in accordance with TG16. In addition this location is along the A596 and is in close proximity to Workington Port and a retail park. 12 months of diffusion tube data was collected with 10 months of duplicate data. The calculated annual bias adjusted mean for 2020 was 10$\mu g/m^3$ a reduction 2.2$\mu g/m^3$ from 2019 data for this location.

DT13/13B Strawberry How, Cockermouth

This is a new monitoring location for 2020 and 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 and the junction towards School Gardens in the direction of Strawberry How Nursery School. 7 months of diffusion tube data was collected with 6 months of duplicate data and was therefore annualised (Table C.2).The calculated annual bias adjusted mean for 2020 was 4.5 $\mu g/m^3$ for this location and is the lowest Nitrogen Dioxide annual mean concentration in Allerdale for 2020.

DT14/14B Kirkby Street, Maryport

This is a new monitoring location for 2020 and is an urban background monitoring location positioned in accordance with TG16 in an urban residential area. 6 months of diffusion tube data was collected with 6 months of duplicate data and was therefore annualised (Table C.2).The calculated annual bias adjusted mean for 2020 was 5.6 $\mu g/m^3$ for this location and is the second lowest Nitrogen Dioxide annual mean concentration in Allerdale for 2020.

DT15/15B Lawn Terrace, Silloth

This is a new monitoring location for 2020 and is an industrial background monitoring location positioned in accordance with TG16 whereby industrial sources are anticipated to make an importance contribution to the total population burden. 7 months of diffusion tube data was collected with 7 months of duplicate data and was therefore annualised (Table C.2).The calculated annual bias adjusted mean for 2020 was 6.9 $\mu g/m^3$ for this location and is the third lowest Nitrogen Dioxide annual mean concentration in Allerdale for 2020.

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)	Distance to Kerb of Nearest Road (m)	Tube Co-located with a Continuous Analyser	Height (m)
DT1, DT1B	Hall Park View, Workington	Kerbside	300721	528958	NO2	NO	0.0	1.0	NO	2.5
DT2, DT2B	Murray Road, Workington	Urban Centre	301194	528711	NO2	NO	N/A	1.0	NO	2.5
DT3, DT3B	Crown Street, Cockermouth	Kerbside	311652	530658	NO2	NO	0.0	0.5	NO	2.5
DT4, DT4B	Main Street, Keswick	Roadside	326419	523602	NO2	NO	4.0	1.5	NO	2.5
DT5, DT5B	Curzon Street, Maryport	Kerbside	303778	536534	NO2	NO	5.0	1.0	NO	2.5
DT6, DT6B	Ramsay Brow, Workington	Kerbside	300588	528682	NO2	NO	0.0	1.0	NO	2.5
DT7, DT7B	King Street, Wigton	Kerbside	325508	548419	NO2	NO	2.0	1.0	NO	2.5
DT8, DT8B	Main Road, High Harrington	Roadside	299591	525545	NO2	NO	0.0	2.0	NO	2.5
DT9, DT9B	Lawson Street, Aspatria	Kerbside	315299	542145	NO2	NO	0.0	1.0	NO	2.5
DT10, DT10B	South Street, Cockermouth	Kerbside	312091	530547	NO2	NO	8.7	0.5	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)	Distance to Kerb of Nearest Road (m)	Tube Co-located with a Continuous Analyser	Height (m)
DT11, DT11B	Penrith Road, Keswick	Kerbside	327949	523764	NO2	NO	7.0	1.0	NO	2.5
DT12, DT12B	Northside Primary School, Northside	Kerbside	299939	529709	NO2	NO	8.0	1.0	NO	2.5
DT13, DT13B	Strawberry How Road, Cockermouth	Suburban	313108	529923	NO2	NO	4.0	0.0	NO	2.5
DT14, DT14B	Kirkby Street, Maryport	Urban Background	303671	536648	NO2	NO	0.0	2.0	NO	2.5
DT15, DT15B	Lawn Terrace, Silloth	Industrial	310858	553564	NO2	NO	2.6	2.5	NO	2.5

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 (%)	Valid Data Capture 2020 (%)	NO_2 Annual Mean Concentration (µg/m^3)				
						2016	2017	2018	2019	2020
DT1, DT1B	300721	528958	Kerbside	79.2	84.6			16.0	16.2	13.0
DT2, DT2B	301194	528711	Urban Centre	87.4	100.0		28.5	27.4	25.0	21.6
DT3, DT3B	311652	530658	Kerbside	100	100.0				19.8	15.0
DT4, DT4B	326419	523602	Roadside	87.4	100.0	29.0	29.3	26.0	25.5	18.4
DT5, DT5B	303778	536534	Kerbside	91.5	92.3	26.0	26.2	25.2	23.9	19.7
DT6, DT6B	300588	528682	Kerbside	83.2	92.3		30.0	32.0	28.5	22.4
DT7, DT7B	325508	548419	Kerbside	95.7	100.0	25.2	23.1	23.4	23.7	19.9
DT8, DT8B	299591	525545	Roadside	83.2	84.6			16.8	16.2	12.6
DT9, DT9B	315299	542145	Kerbside	87.4	90.4			16.7	16.0	13.0
DT10, DT10B	312091	530547	Kerbside	74.9	82.7				16.5	12.5
DT11, DT11B	327949	523764	Kerbside	95.7	100.0			21.7	20.2	13.1

Diffusion Tube ID	X OS Grid Ref (Easting)	Y OS Grid Ref (Northing)	Site Type	Valid Data Capture for Monitoring Period (%)	Valid Data Capture 2020 (%)	NO_2 Annual Mean Concentration ($\mu g/m^3$)				
						2016	2017	2018	2019	2020
DT12, DT12B	299939	529709	Kerbside	91.5	100.0				12.2	10.0
DT13, DT13B	313108	529923	Suburban	92.8	59.6					4.5
DT14, DT14B	303671	536648	Urban Background	85.7	50.0					5.6
DT15, DT15B	310858	553564	Industrial	100	59.6					6.9

Figure A.1 – Trends in Annual Mean NO_2 Concentrations

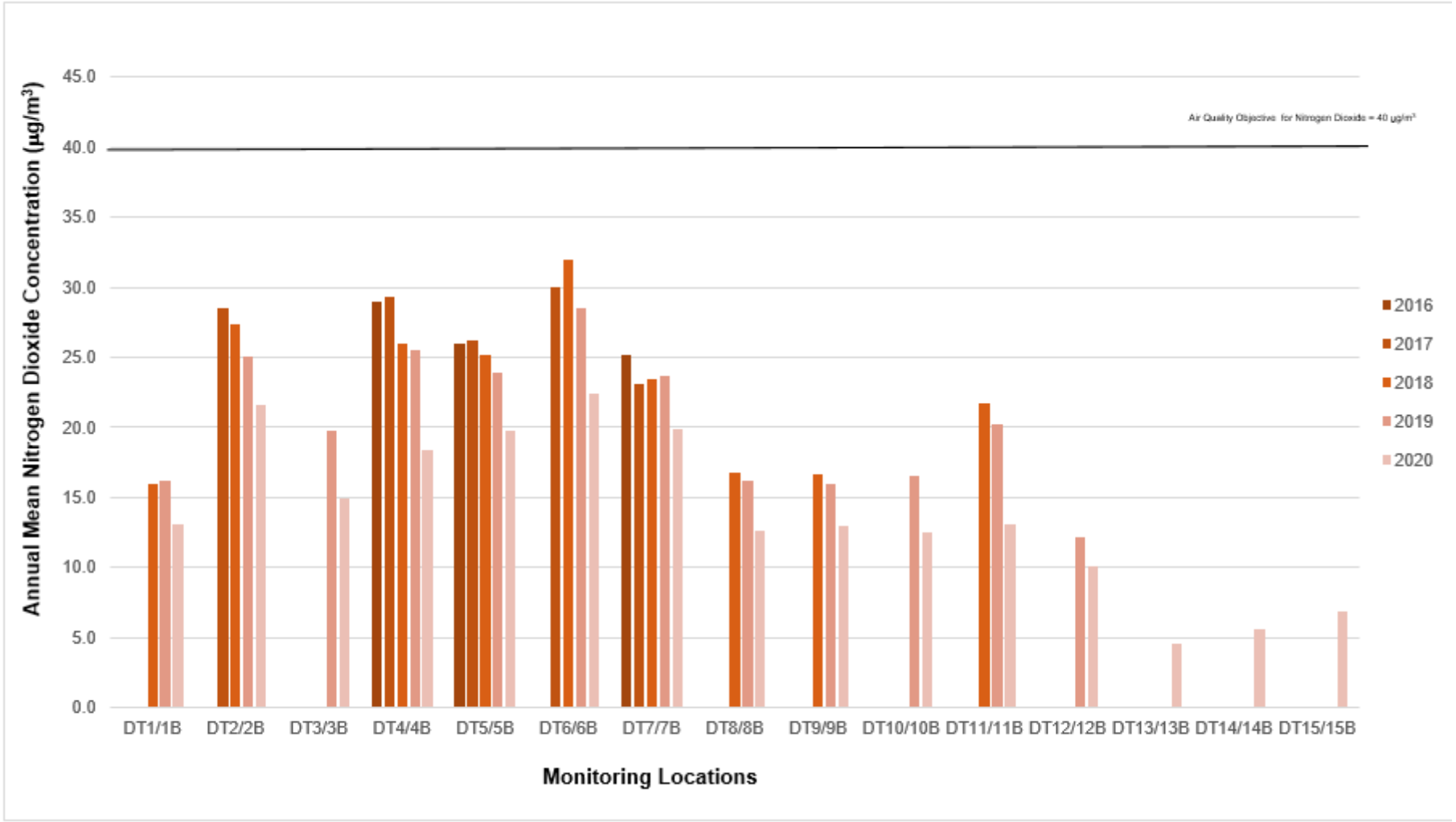

Figure A.1 presents NO_2 annual mean concentrations for sites DT1/1B to DT15/15B between years 2016 to 2020. There are no exceedances of the annual mean objective in 2020 and there is a general trend of reduction experienced across the sites

Appendix B: Full Monthly Diffusion Tube Results for 2020

Table B.1 – NO_2 2020 Diffusion Tube Results (µg/m^3)

Diffusion Tube ID	X OS Grid Ref (Easting)	Y OS Grid Ref (Northing)	NO_2 Mean Concentrations (µg/m^3)												Simple Annual Mean (µg/m3)			Comment
			Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Raw Data	Bias Adjusted (0.77) and Annualised	Distance Corrected to Nearest Exposure	
DT1	300721	528958	23.2		19.6	12.2	11.7	14.6		16.7	15.9	15.4	19.7	22.6	-	-	-	Duplicate Site with DT1 and DT1B - Annual data provided for DT1B only
DT1B	300721	528958			15.7	12.1	12.0	14.3		16.2	15.6	16.2	18.6	23.2	16.9	13.0	-	Duplicate Site with DT1 and DT1B - Annual data provided for DT1B only
DT2	301194	528711	45.0	15.7		18.0	19.9	23.6	26.4	25.1	33.6	33.2	32.5		-	-	-	Duplicate Site with DT2 and DT2B - Annual data provided for DT2B only
DT2B	301194	528711	44.7		31.0	18.1	19.3	24.2	27.5	25.1	31.7	35.6	31.9	32.1	28.0	21.6	-	Duplicate Site with DT2 and DT2B - Annual data provided for DT2B only
DT3	311652	530658	26.7	20.9	21.2	10.8	13.2	15.7	14.9	18.3	17.9	20.1	22.4	31.9	-	-	-	Duplicate Site with DT3 and DT3B - Annual data provided for DT3B only
DT3B	311652	530658	27.6	22.2	17.7	10.6	13.9	15.6	14.6	19.3	19.8	20.2	21.7	28.8	19.4	15.0	-	Duplicate Site with DT3 and DT3B - Annual data provided for DT3B only
DT4	326419	523602	34.3		20.7	10.4	14.2	13.3	24.7	28.6	29.3	31.3		30.5	-	-	-	Duplicate Site with DT4 and DT4B - Annual data provided for DT4B only
DT4B	326419	523602		28.5	19.9	9.7	13.6	12.9	24.4	26.8	30.6	32.4	24.1	26.5	23.9	18.4	-	Duplicate Site with DT4 and DT4B - Annual data provided for DT4B only
DT5	303778	536534	42.0		27.3	17.1	21.9	21.0	23.6	23.1	27.3	26.0	29.0	28.1	-	-	-	Duplicate Site with DT5 and DT5B - Annual data provided for DT5B only
DT5B	303778	536534	37.9		29.0	17.8	20.2	20.3	21.5	24.5	26.8	25.1	25.6	27.9	25.6	19.7	-	Duplicate Site with DT5 and DT5B - Annual data provided for DT5B only
DT6	300588	528682	40.6		31.4	17.8	20.9	25.5	23.2	29.5	32.5	28.6	32.9		-	-	-	Duplicate Site with DT6 and DT6B - Annual data provided for DT6B only
DT6B	300588	528682			33.7	18.1	18.9	27.0	22.8	28.9	31.4	29.2	32.2	37.8	29.2	22.4	-	Duplicate Site with DT6 and DT6B - Annual data provided for DT6B only
DT7	325508	548419	35.0	25.5	26.0	17.1	21.6	23.1		25.5	28.5	26.6	27.4	32.0	-	-	-	Duplicate Site with DT7 and DT7B - Annual data provided for DT7B only
DT7B	325508	548419	35.3	24.4	28.0	16.8	20.7	21.5	19.0	25.2	27.1	30.0	27.4	36.3	25.8	19.9	-	Duplicate Site with DT7 and DT7B - Annual data provided for DT7B only
DT8	299591	525545	15.0		17.1	13.4	12.6	15.0		15.2	16.6	15.7	18.2	24.4	-	-	-	Duplicate Site with DT8 and DT8B - Annual data provided for DT8B only
DT8B	299591	525545	15.1		17.0	14.7	12.8	14.4		14.1	16.1	16.4	18.9	25.0	16.4	12.6	-	Duplicate Site with DT8 and DT8B - Annual data provided for DT8B only
DT9	315299	542145	22.0	17.9	17.6	11.7		13.3	12.2	14.9	15.1	16.9	15.3		-	-	-	Duplicate Site with DT9 and DT9B - Annual data provided for DT9B only

Diffusion Tube ID	X OS Grid Ref (Easting)	Y OS Grid Ref (Northing)	NO_2 Mean Concentrations (µg/m^3)												Simple Annual Mean (µg/m3)			Comment
			Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Raw Data	Bias Adjusted (0.77) and Annualised	Distance Corrected to Nearest Exposure	
DT9B	315299	542145	24.5	17.4	17.0	11.2		12.9	12.7	15.4	18.5	18.5	20.0	23.3	16.9	13.0	-	Duplicate Site with DT9 and DT9B - Annual data provided for DT9B only
DT10	312091	530547				10.8		12.6	11.5	16.5	17.8	18.1	18.5	23.2	-	-	-	Duplicate Site with DT10 and DT10B - Annual data provided for DT10B only
DT10B	312091	530547		16.3	15.1	10.6		13.2	11.5	15.4	18.6	18.6	20.1	25.5	16.3	12.5	-	Duplicate Site with DT10 and DT10B - Annual data provided for DT10B only
DT11	327949	523764	17.3	12.8	14.1	9.4	9.5	14.7	13.1	25.8	24.3	23.4	17.4	20.8	-	-	-	Duplicate Site with DT11 and DT11B - Annual data provided for DT11B only
DT11B	327949	523764		13.3	14.2	7.5	10.2	14.3	14.1	26.5	24.2	23.3	18.3	21.6	17.0	13.1	-	Duplicate Site with DT11 and DT11B - Annual data provided for DT11B only
DT12	299939	529709	23.4	13.5	13.4	8.0	9.5	10.1	10.6	12.4	15.1	11.6		14.2	-	-	-	Duplicate Site with DT12 and DT12B - Annual data provided for DT12B only
DT12B	299939	529709	25.2		14.9	8.7	10.2	9.4	9.8	11.5	13.2	12.0	15.7	11.1	13.0	10.0	-	Duplicate Site with DT12 and DT12B - Annual data provided for DT12B only
DT13	313108	529923						3.4		5.3	6.3	5.9	7.9	9.3	-	-	-	Duplicate Site with DT13 and DT13B - Annual data provided for DT13B only
DT13B	313108	529923						4.0	4.5	5.3	5.7	6.0	8.2	9.7	6.1	4.5	-	Duplicate Site with DT13 and DT13B - Annual data provided for DT13B only
DT14	303671	536648						7.1	7.6	9.3	11.7		12.2	9.9	-	-	-	Duplicate Site with DT14 and DT14B - Annual data provided for DT14B only
DT14B	303671	536648						6.4	6.1	8.3	9.3		12.4	5.6	7.6	5.6	-	Duplicate Site with DT14 and DT14B - Annual data provided for DT14B only
DT15	310858	536648						8.0	5.9	10.7	8.3	8.9	12.3	13.7	-	-	-	Duplicate Site with DT15 and DT15B - Annual data provided for DT15B only
DT15B	310858	553564						7.5	5.4	10.3	7.8	8.3	12.9	10.7	9.3	6.9	-	Duplicate Site with DT15 and DT15B - Annual data provided for DT15B only

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

New or Changed Sources Identified Within Allerdale Borough Council During 2020:

Allerdale Borough Council has not identified any new sources relating to air quality within the reporting year of 2020. Allerdale Borough Council takes a proactive approach to identify new or changed sources.

Additional Air Quality Works Undertaken by Allerdale Borough Council During 2020

Allerdale Borough Council has not completed any additional works within the reporting year of 2020.

QA/QC of Diffusion Tube Monitoring

Monitoring has been completed in adherence with the 2020 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 2020. 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 2020 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

12 diffusion tube monitoring locations within Allerdale Borough recorded data capture of 75% therefore it was not required to annualise this monitoring data. However the additional, 3 non-automatic monitoring sites (DT13/13B, DT14/14B, and DT15/15B) had a data capture of less than 75% but greater than 33% due to COVID-19 challenges regarding installation and therefore required annualisation. The annualisation calculation method for (DT13/13B, DT14/14B, and DT15/15B) involved the use of the Diffusion Data Processing Tool and is presented in Table C.2.

As described in LAQM Technical Guidance paragraph 7.129, and boxes 7.9 and 7.10 (Defra 2018), when completing annualisation it is recommended that 2-4 continuous monitoring locations, ideally part of a national monitoring network (e.g. AURN), are used. Through the use of the UK-AIR Interactive Map (2021) Allerdale Borough Council identified 4 continuous monitoring sites for annualisation. This included: Carlisle Roadside, Eskdalemuir, Newcastle Centre, Blackpool Marton, and all sites have >85% data capture.

For this location it is difficult to find 2-4 continuous monitoring background locations within a 50 mile radius and therefore through discussion with the LAQM Helpdesk the decision was decided to select the nearest 4 continuous monitoring background monitoring sites in relation to Allerdale House, Workington. Therefore Eskdalemuir (a distance of 65.7 miles) Newcastle Centre (a distance of 91.7 miles), Blackpool Marton (a distance of 104 miles) and Carlisle Roadside (a distance of 31 miles) was selected for annualisation.

Diffusion Tube Bias Adjustment Factors

The diffusion tube data presented within the 2020 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 0.77 to the 2020 monitoring data. The national factor selected was SOCOTEC Didcot (50% TEA in Acetone)

based on 22 studies applicable to the factor from 03/21 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

Year	Local or National	If National, Version of National Spreadsheet	Adjustment Factor
2020	National	03/21	0.77
2019	National	03/20	0.75
2018	National	03/19	0.76
2017	National	03/18	0.77
2016	National	03/17	0.77

NO_2 Fall-off with Distance from the Road

No diffusion tube NO_2 monitoring locations within Allerdale Borough Council required distance correction during 2020.

Table C.2 – Annualisation Summary (concentrations presented in µg/m^3)

Diffusion Tube ID	Annualisation Factor Carlisle Roadside	Annualisation Factor Eskdalemuir Background	Annualisation Factor Newcastle Centre Background	Annualisation Factor Blackpool Marton Background	Average Annualisation Factor	Raw Data Simple Annual Mean (µg/m3)	Annualised Data Simple Annual Mean (µg/m3)	Comments
DT13	0.9539	0.9794	0.9270	0.9815	0.9605	-	-	*Duplicate Site with DT13 and DT13B - Annual data provided for DT13B only*
DT13B	0.9539	0.9794	0.9270	0.9815	0.9605	6.1	5.9	*Duplicate Site with DT13 and DT13B - Annual data provided for DT13B only*
DT14	0.9747	0.9509	0.9522	0.9652	0.9608	-	-	*Duplicate Site with DT14 and DT14B - Annual data provided for DT14B only*
DT14B	0.9747	0.9509	0.9522	0.9652	0.9608	7.6	7.3	*Duplicate Site with DT14 and DT14B - Annual data provided for DT14B only*
DT15	0.9539	0.9794	0.9270	0.9815	0.9605	-	-	*Duplicate Site with DT15 and DT15B - Annual data provided for DT15B only*
DT15B	0.9539	0.9794	0.9270	0.9815	0.9605	9.3	9.0	*Duplicate Site with DT15 and DT15B - Annual data provided for DT15B only*

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

Figure D.1 - Presents a Map of Non-Automatic Monitoring Sites across Allerdale Borough Council during 2020

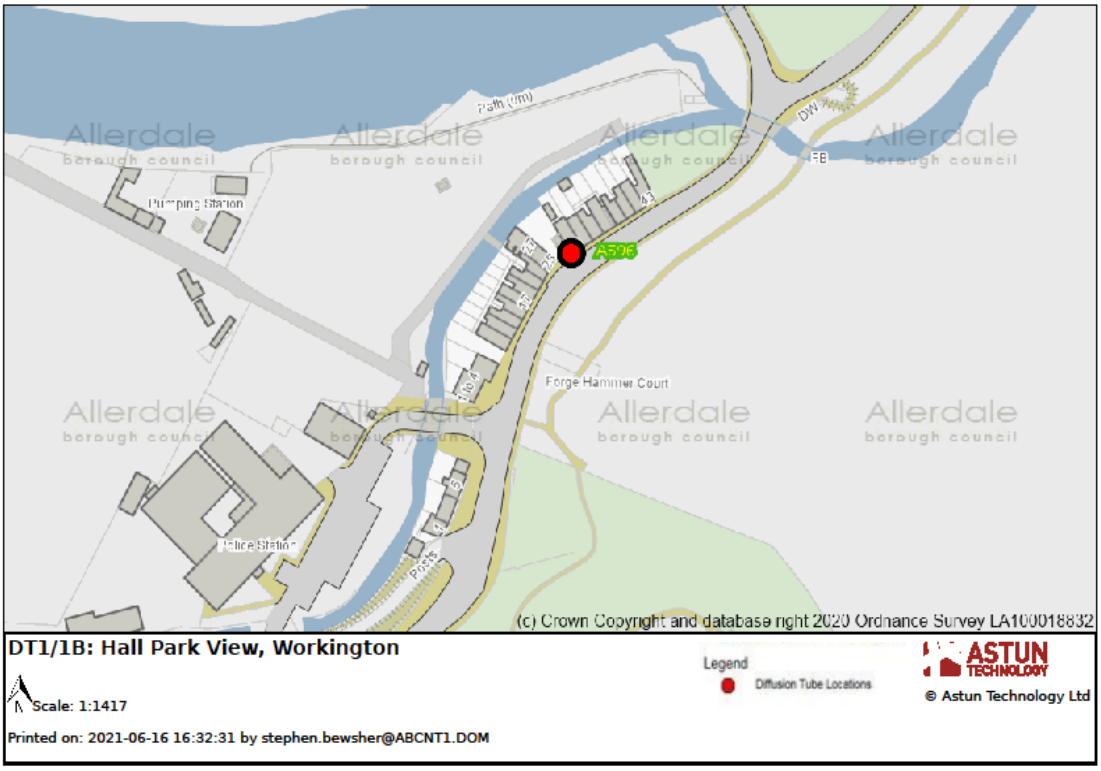

Figure D.2 – Presents a Map of DT1/1B Hall Park View, Workington

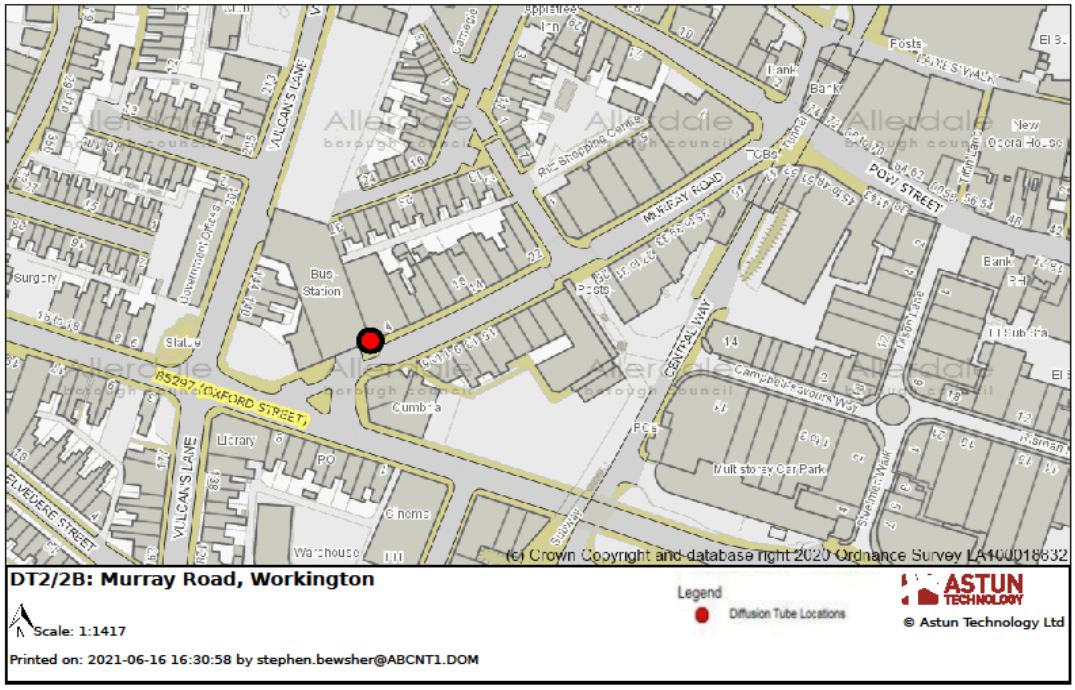

Figure D.3 – Presents a Map of DT2/2B Murray Road, Workington

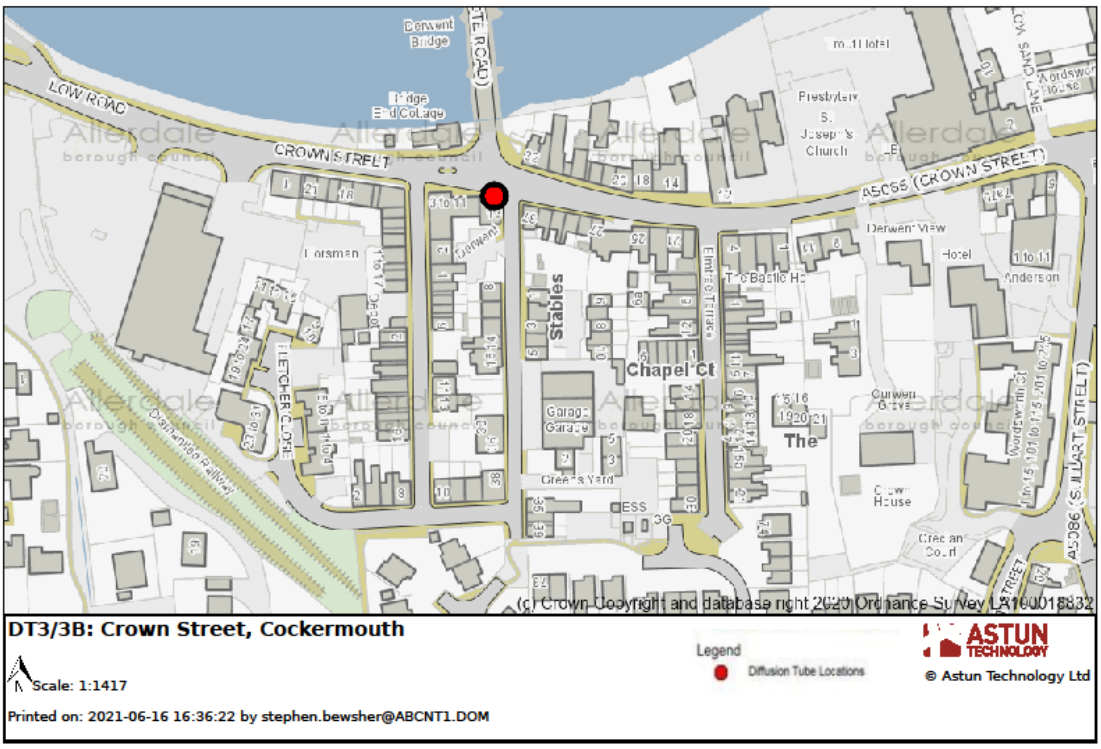

Figure D.4 – Presents a Map of DT3/3B Crown Street, Cockermouth

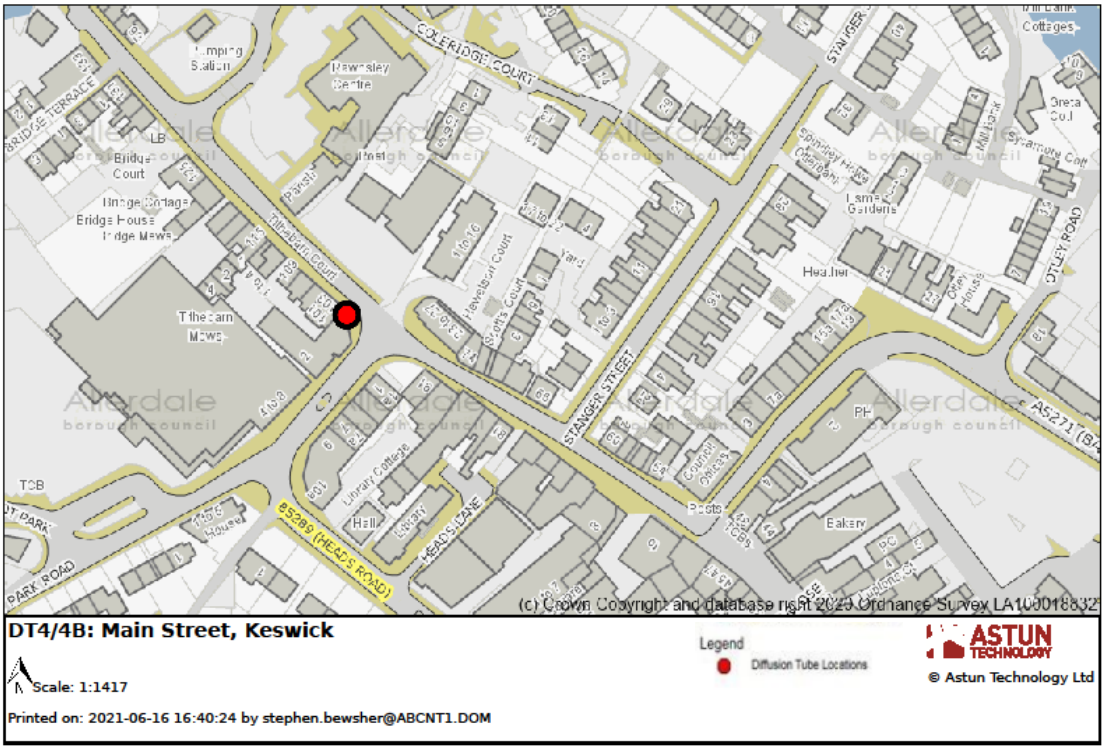

Figure D.5 - Presents a Map of DT4/4B Main Street, Keswick

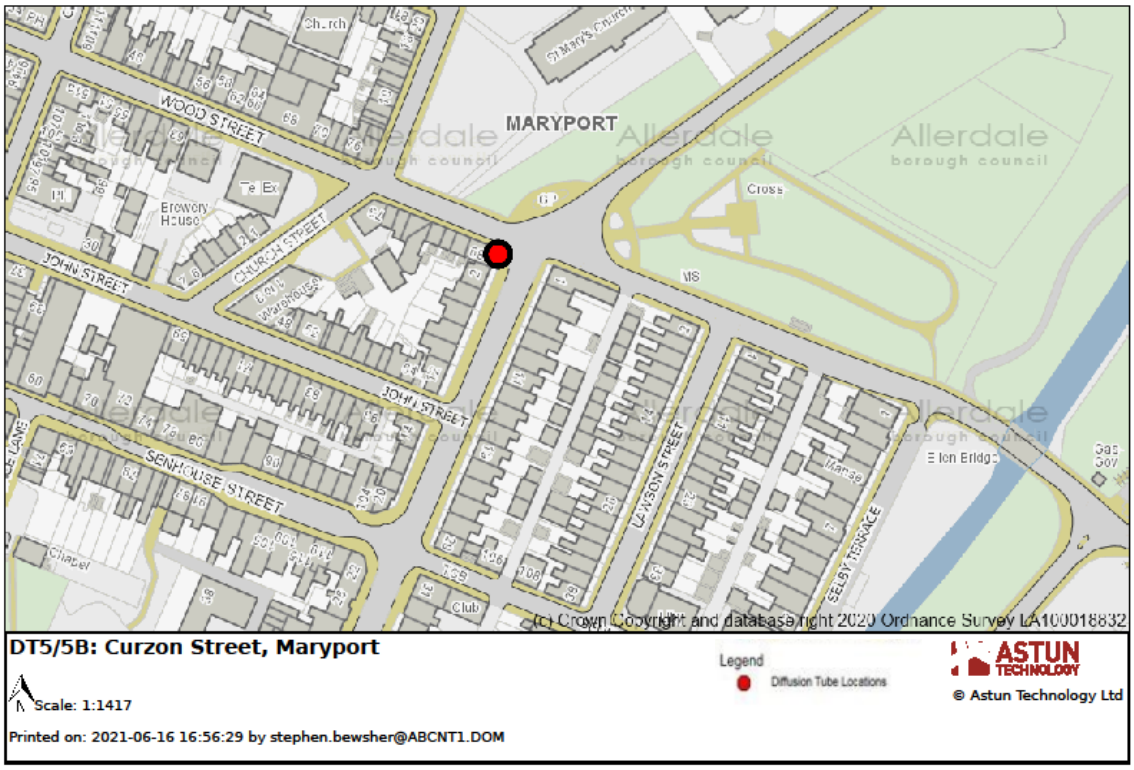

Figure D.6 - Presents a Map of DT5/5B Curzon Street, Maryport

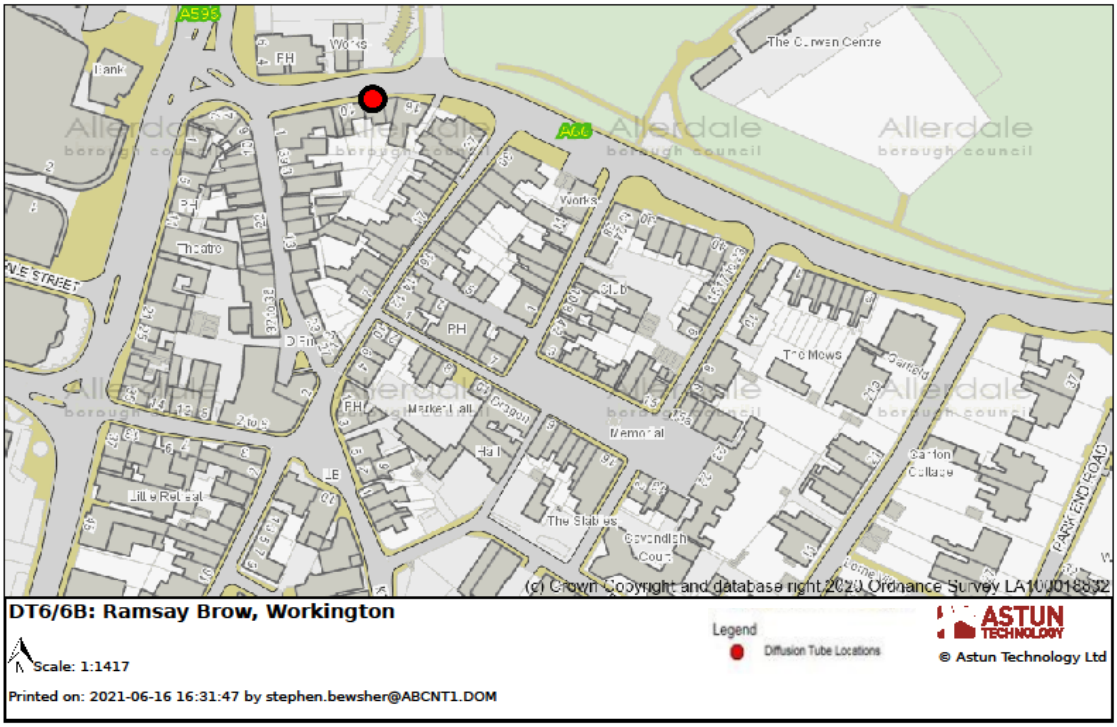

Figure D.7 - Presents a Map of DT6/6B Ramsay Brow, Workington

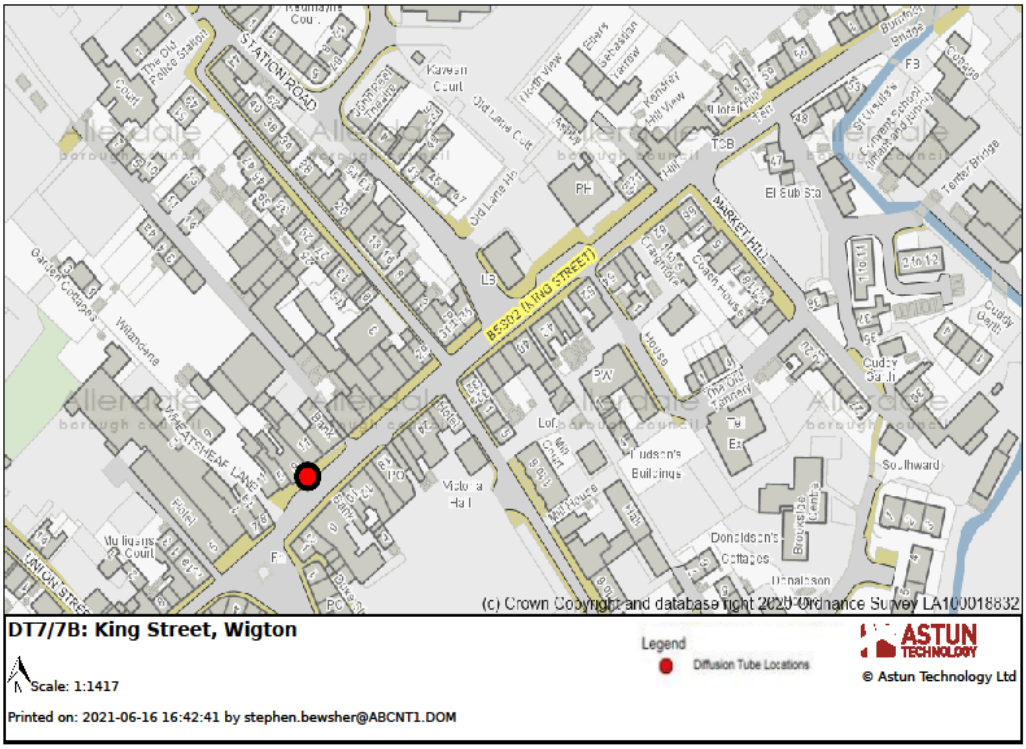

Figure D. 8- Presents a Map of DT7/7B King Street, Wigton

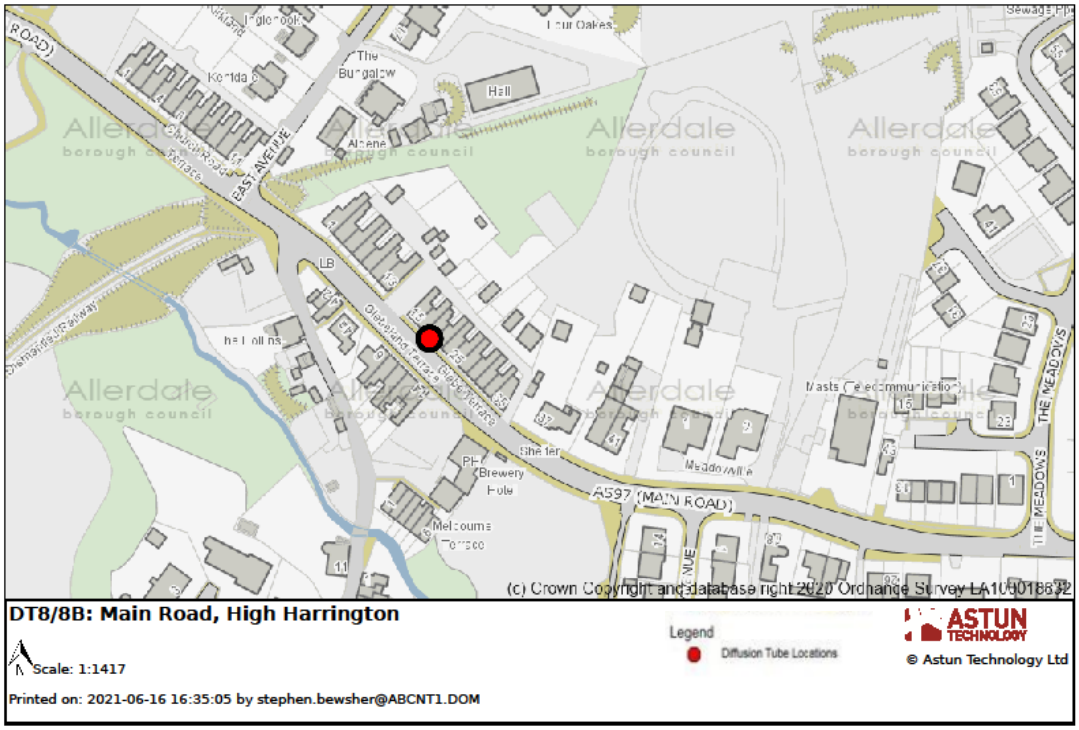

Figure D.9 - Presents a Map of DT8/8B Main Road, High Harrington

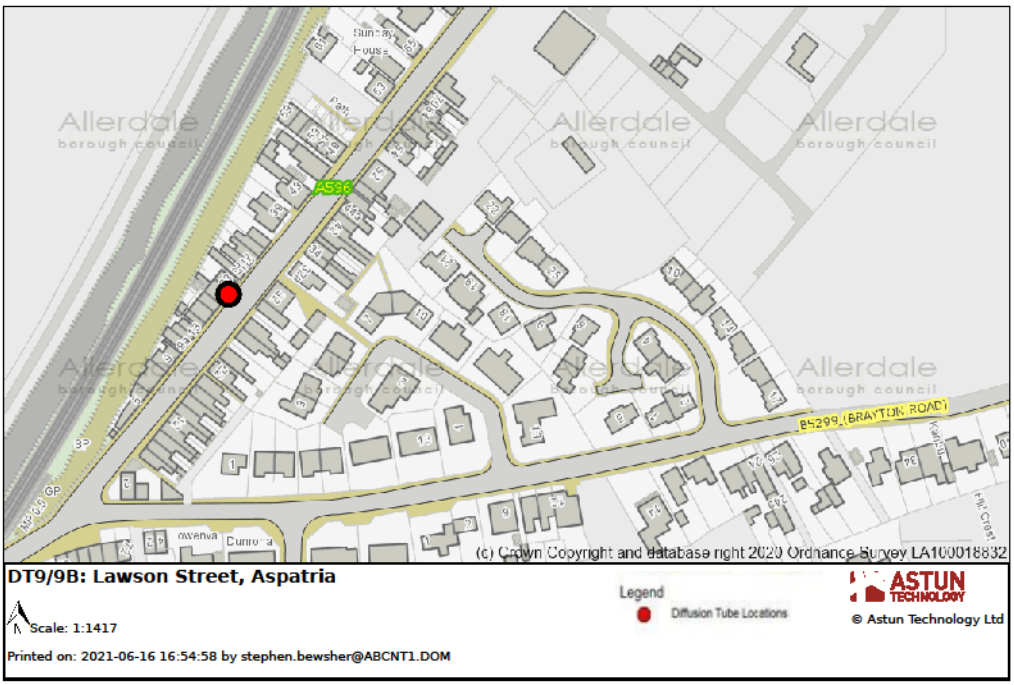

Figure D.10 - Presents a Map of DT9/9B Lawson Street, Aspatria

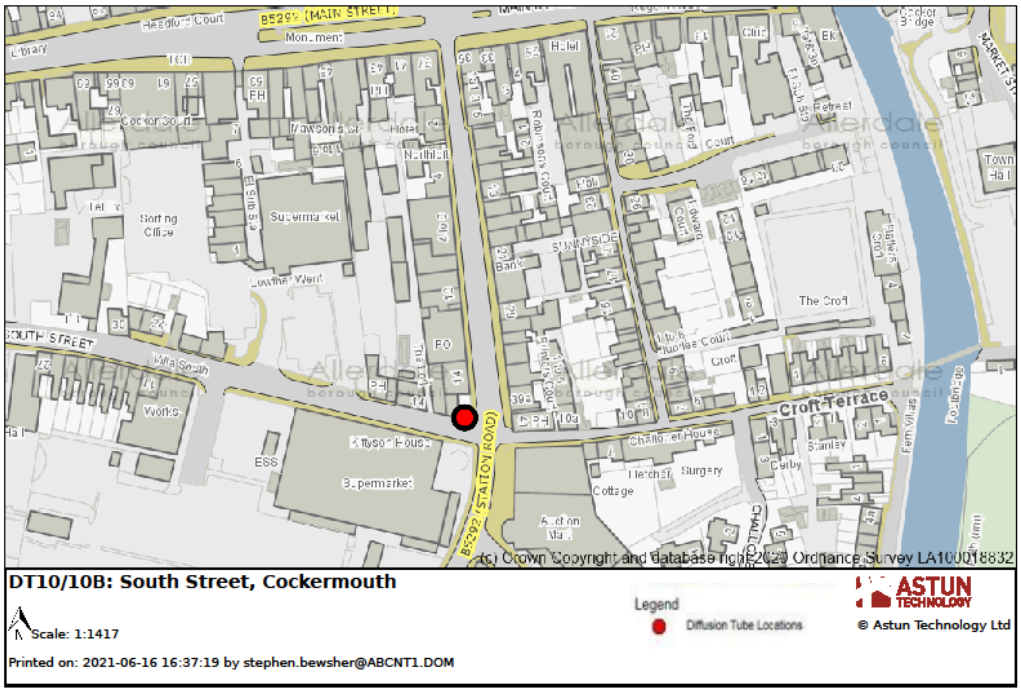

Figure D.11 - Presents a Map of DT10/10B South Street, Cockermouth

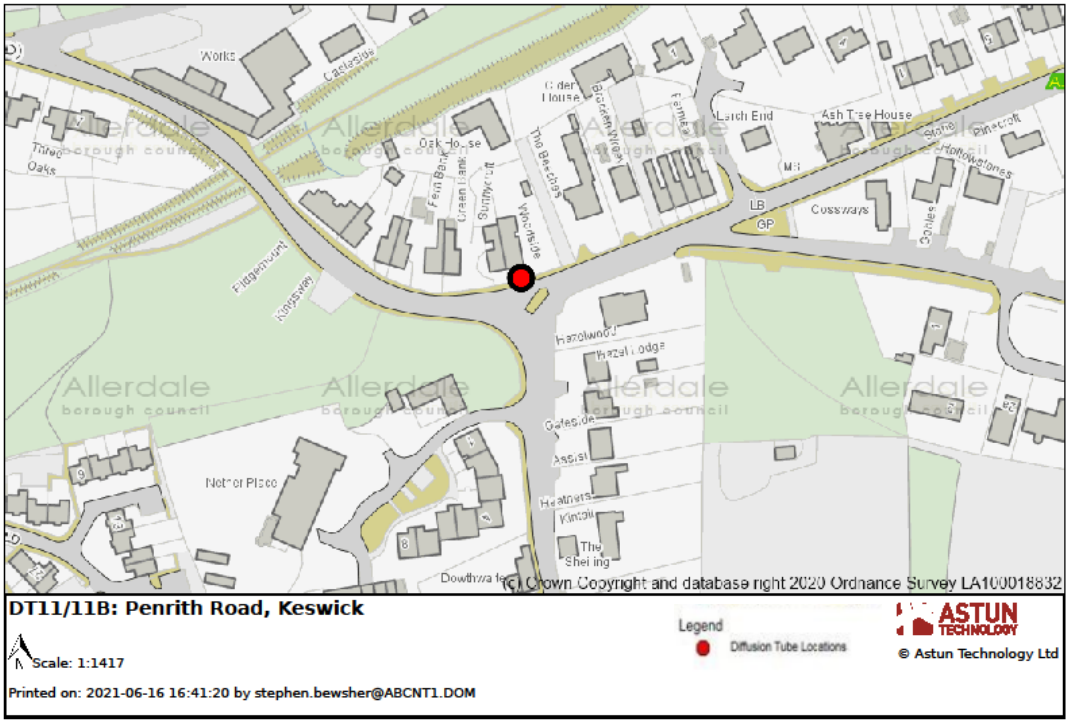

Figure D.12 - Presents a Map of DT11/11B Penrith Road, Keswick

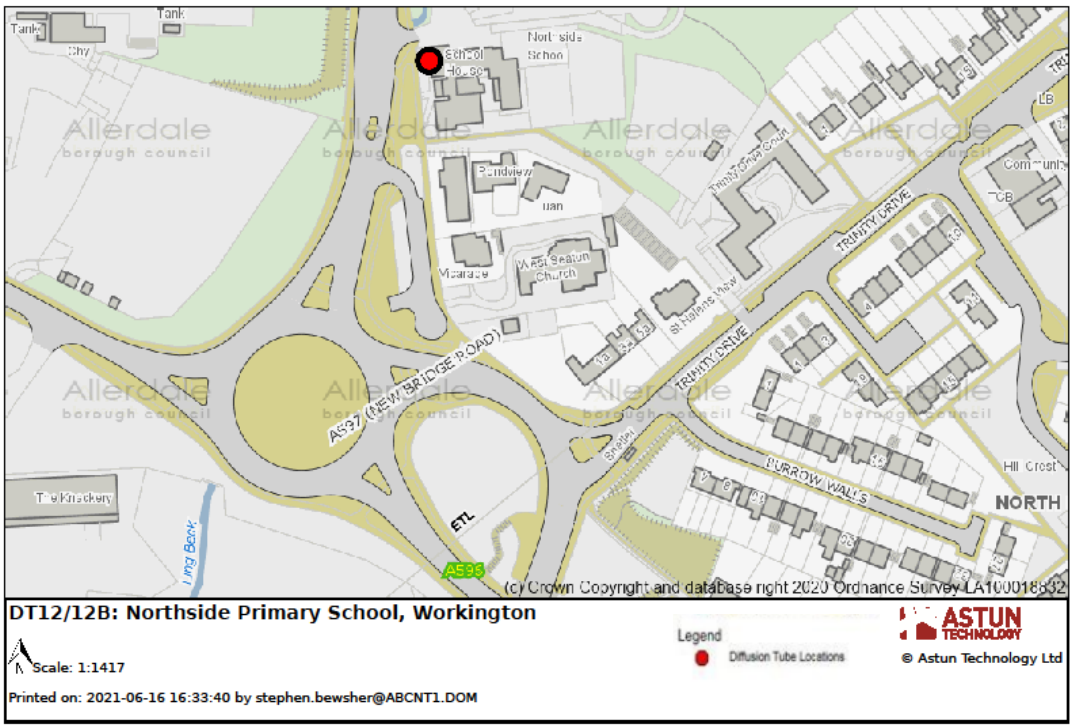

Figure D.13- Presents a Map of DT12/12B Northside Primary School, Workington

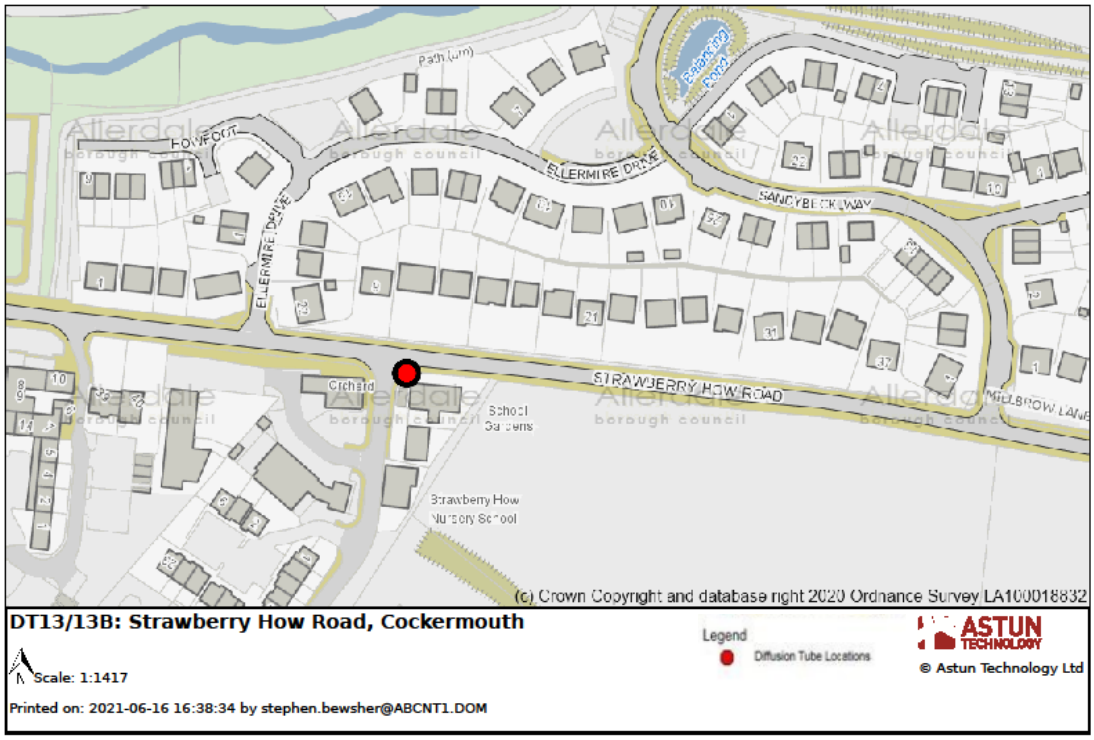

Figure D.14- Presents a Map of DT13/13B Strawberry How, Cockermouth

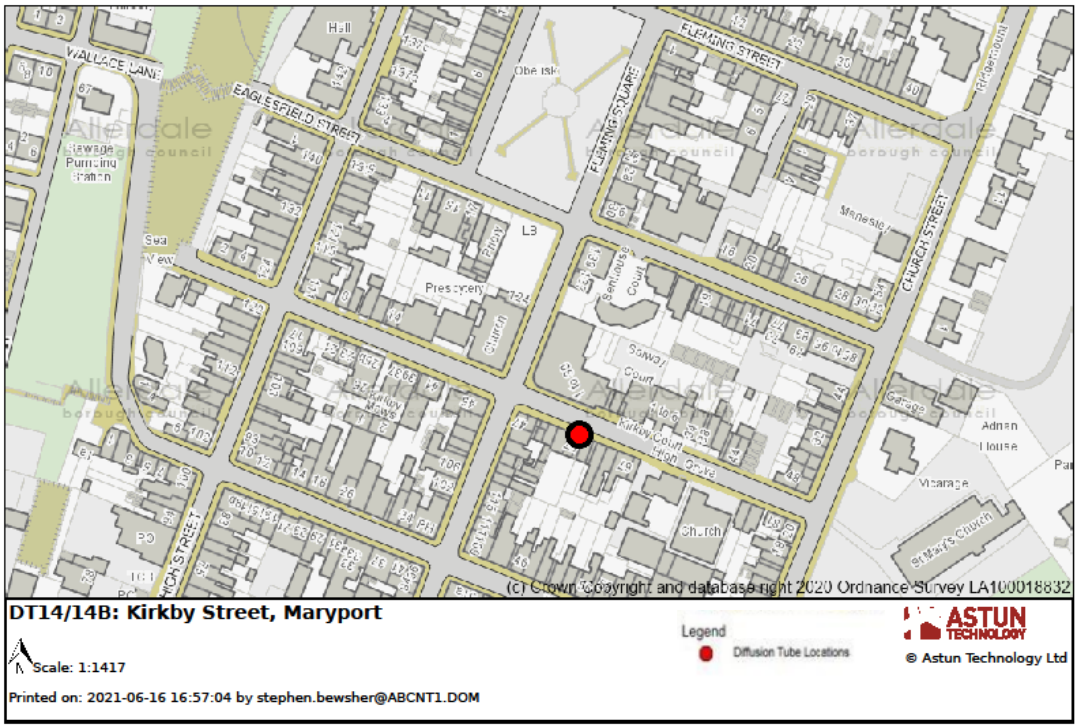

Figure D.15- Presents a Map of DT14/14B Kirkby Street, Maryport

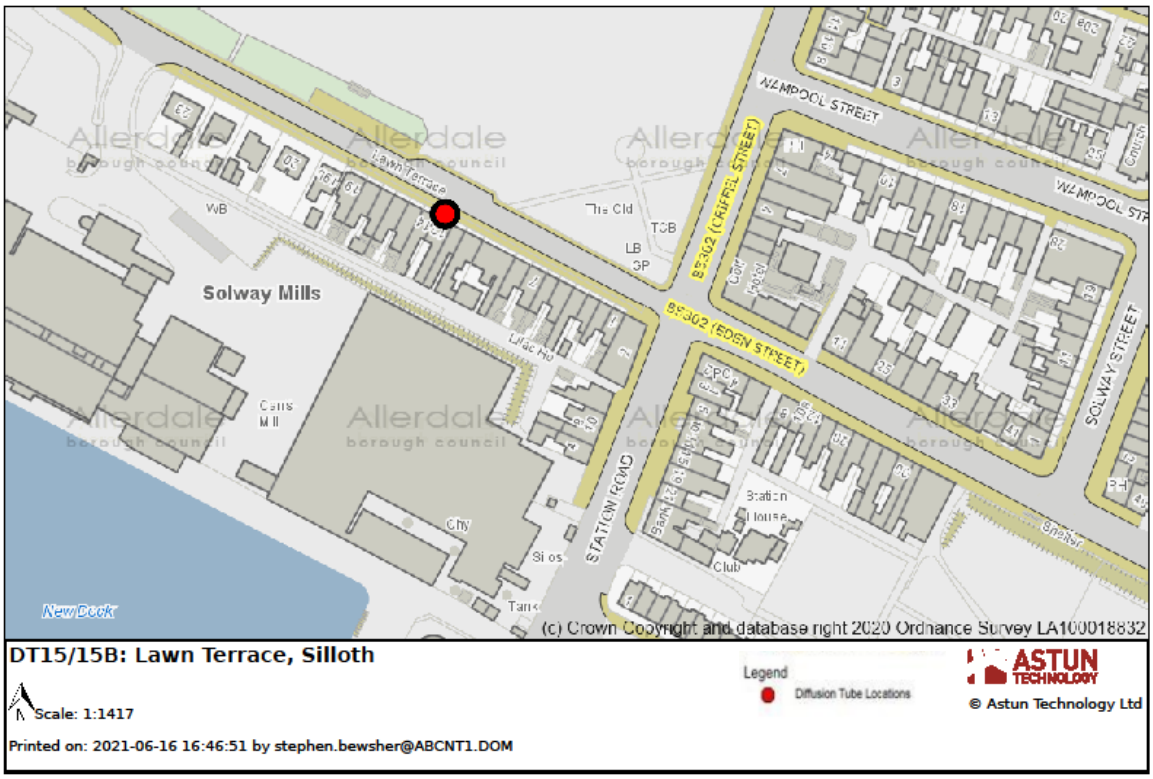

Figure D.16- Presents a Map of DT15/15B Lawn Terrace, Silloth

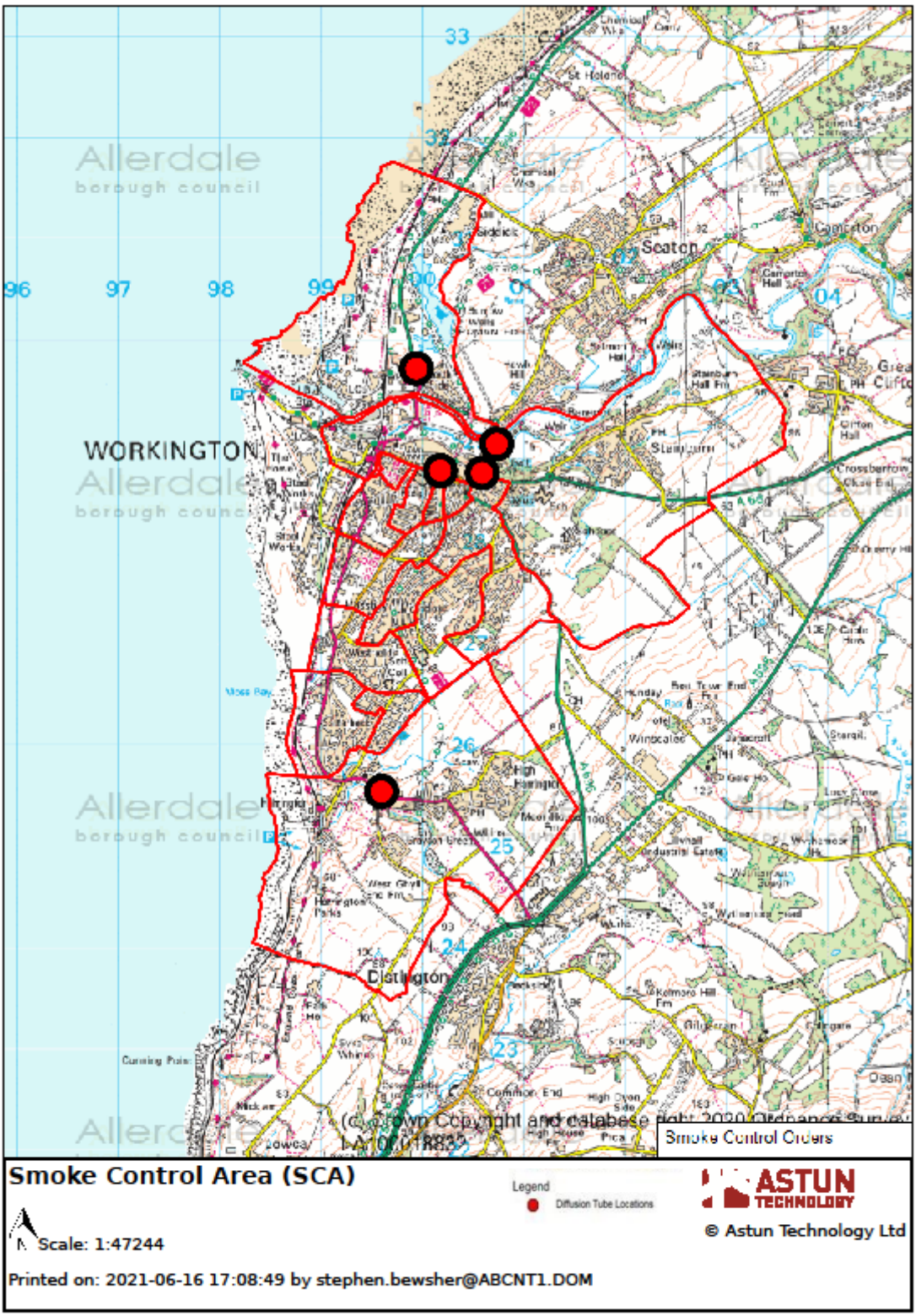

Figure D.17 - Presents a Smoke Control Area within the red boundary in relation to nearby diffusion tube monitoring sites

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).

Appendix E: Summary of Air Quality Objectives in England

Table E.2 – Air Quality Objectives in England[8]

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

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

Appendix F: Impact of COVID-19 upon LAQM

COVID-19 has had a significant impact on society. Inevitably, COVID-19 has also had an impact on the environment, with implications to air quality at local, regional and national scales.

COVID-19 has presented various challenges for Local Authorities with respect to undertaking their statutory LAQM duties in the 2021 reporting year. Recognising this, Defra provided various advice updates throughout 2020 to English authorities, particularly concerning the potential disruption to air quality monitoring programmes, implementation of Air Quality Action Plans (AQAPs) and LAQM statutory reporting requirements. Defra has also issued supplementary guidance for LAQM reporting in 2021 to assist local authorities in preparing their 2021 ASR. Where applicable, this advice has been followed.

Despite the challenges that the pandemic has given rise to, the events of 2020 have also provided Local Authorities with an opportunity to quantify the air quality impacts associated with wide-scale and extreme intervention, most notably in relation to emissions of air pollutants arising from road traffic. The vast majority (>95%) of AQMAs declared within the UK are related to road traffic emissions, where attainment of the annual mean objective for nitrogen dioxide (NO_2) is considered unlikely. On 23rd March 2020, the UK Government released official guidance advising all members of public to stay at home, with work-related travel only permitted when absolutely necessary. During this initial national lockdown (and to a lesser extent other national and regional lockdowns that followed), marked reductions in vehicle traffic were observed; Department for Transport (DfT) data[9] suggests reductions in vehicle traffic of up to 70% were experienced across the UK by mid-April, relative to pre COVID-19 levels.

This reduction in travel in turn gave rise to a change of air pollutant emissions associated with road traffic, i.e. nitrous oxides (NO_x), and exhaust and non-exhaust particulates (PM). The Air Quality Expert Group (AQEG)[10] has estimated that during the initial lockdown period in 2020, within urbanised areas of the UK reductions in NO_2 annual mean concentrations

[9] Prime Minister's Office, COVID-19 briefing on the 31st of May 2020

[10] Air Quality Expert Group, Estimation of changes in air pollution emissions, concentrations and exposure during the COVID-19 outbreak in the UK, June 2020

were between 20 and 30% relative to pre-pandemic levels, which represents an absolute reduction of between 10 to 20µg/m^3 if expressed relative to annual mean averages. During this period, changes in $PM_{2.5}$ concentrations were less marked than those of NO_2. $PM_{2.5}$ concentrations are affected by both local sources and the transport of pollution from wider regions, often from well beyond the UK. Through analysis of AURN monitoring data for 2018-2020, AQEG have detailed that $PM_{2.5}$ concentrations during the initial lockdown period are of the order 2 to 5µg/m^3 lower relative to those that would be expected under business-as-usual conditions.

As restrictions are gradually lifted, the challenge is to understand how these air quality improvements can benefit the long-term health of the population.

Impacts of COVID-19 on Air Quality within Allerdale Borough Council

A summary of relevant information to detail COVID-19 related impacts:

- Reductions of NO_2 concentrations between all diffusion tube monitoring sites within Allerdale have been identified. Monitoring site DT11/11B Penrith Road, Keswick demonstrated the most significant reduction in the annual mean concentration for 2020 in comparison to 2019 data of 9.1 µg/m^3. Whereas DT12/12B Northside Primary School demonstrated the least reduction in the annual mean concentration in 2020 of 2.2µg/m^3 in comparison to 2019 data.
- Traffic counts by Cumbria County Council during 2020 have indicated a reduction in traffic numbers in some locations across Cumbria. This will allow estimations to be made for the reduction in traffic numbers required to understand how to continue to achieve compliance with the annual mean NO_2 objective.
- During 2020, the aviation sector was significantly disrupted. Commercial domestic flight operations at Carlisle Lake District Airport in 2020 were halted due to COVID-19. Air quality monitoring is undertaken in close proximity to the airport by Carlisle City Council and to date has been identified as not meeting the criterion regarding Nitrogen Dioxide exceedances remaining more or less constant (Carlisle City Council 2020).

Opportunities Presented by COVID-19 upon LAQM within Allerdale Borough Council

Details of any opportunities and/or measures implemented within 2020 attributed to the pandemic:

- Bike Box Lines – Multiple bike box lines across main towns in Allerdale have been implemented by Cumbria County Council Highways Authority. This road marking measure at signalised road junctions is to allow cyclists a head start when the traffic signals change.
- Cycle Lane – A cycle lane was implemented on the Cumbria Way into Keswick reducing road traffic by Cumbria County Council Highways Authority. Due to positive feedback the measure is a permanent feature.
- Temporary pavement widening – A temporary measure on Station Street, Cockermouth to widen the pavements to encourage social distancing.

Challenges and Constraints Imposed by COVID-19 upon LAQM within Allerdale Borough Council

No major challenges or constraints relating to LAQM have arisen during 2020 as a consequence of COVID-19 within Allerdale Borough Council. Details on any challenges and/or constraints that have been experienced in relation to LAQM within 2020 that can be attributed to the pandemic:

- As with previous years, a national bias adjustment factor has been utilised to adjust the diffusion tube results for 2020. Within 2019 there were 24 co-location studies that were utilised to calculate the bias factor for the laboratory and preparation method used. For 2020, this number has reduced to only 22 studies. There is therefore some potential for there to be a marginal degree of uncertainty associated with the resultant annual mean NO_2 concentrations in 2020 than in previous years. **Small Impact as identified within the LAQM Impact Matrix.**
- During 2020, access to install a number of diffusion tube monitoring sites was restricted. Therefore, it was not possible to install diffusion tube exposure periods in line with the national monitoring calendar for a number of sites. This has affected data capture within 2020, resulting in monitoring sites DT13/13B, DT14/14B and DT15/15B having to be annualised. **Medium Impact as identified within the LAQM Impact Matrix.**

Table F 1 – Impact Matrix

Category	Impact Rating: None	Impact Rating: Small	Impact Rating: Medium	Impact Rating: High
Automatic Monitoring – Data Capture (%)	More than 75% data capture	50 to 75% data capture	25 to 50% data capture	Less than 25% data capture
Automatic Monitoring – QA/QC Regime	Adherence to requirements as defined in LAQM.TG16	Routine calibrations taken place frequently but not to normal regime. Audits undertaken alongside service and maintenance programmes	Routine calibrations taken place infrequently and service and maintenance regimes adhered to. No audit achieved	Routine calibrations not undertaken within extended period (e.g. 3 to 4 months). Interruption to service and maintenance regime and no audit achieved
Passive Monitoring – Data Capture (%)	More than 75% data capture	50 to 75% data capture	25 to 50% data capture	Less than 25% data capture
Passive Monitoring – Bias Adjustment Factor	Bias adjustment undertaken as normal	<25% impact on normal number of available bias adjustment colocation studies (2020 vs 2019)	25-50% impact on normal number of available bias adjustment studies (2020 vs 2019)	>50% impact on normal number of available bias adjustment studies (2020 vs 2019) and/or applied bias adjustment factor studies not considered representative of local regime
Passive Monitoring – Adherence to Changeover Dates	Defra diffusion tube exposure calendar adhered to	Tubes left out for two exposure periods	Tubes left out for three exposure periods	Tubes left out for more than three exposure periods
Passive Monitoring – Storage of Tubes	Tubes stored in accordance with laboratory guidance and analysed promptly.	Tubes stored for longer than normal but adhering to laboratory guidance	Tubes unable to be stored according to be laboratory guidance but analysed prior to expiry date	Tubes stored for so long that they were unable to be analysed prior to expiry date. Data unable to be used
AQAP – Measure Implementation	Unaffected	Short delay (<6 months) in development of a new AQAP, but is on-going	Long delay (>6 months) in development of a new AQAP, but is on-going	No progression in development of a new AQAP
AQAP – New AQAP Development	Unaffected	Short delay (<6 months) in development of a new AQAP, but is on-going	Long delay (>6 months) in development of a new AQAP, but is on-going	No progression in development of a new AQAP

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 Highways England
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

References

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