St.Helens Council

2023 Air Quality Annual Status Report (ASR)

In fulfilment of Part IV of the Environment Act 1995 Local Air Quality Management, as amended by the Environment Act 2021

Date: 30 June, 2023

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Executive Summary: Air Quality in Our Area

Air Quality in St Helens

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 29,000 to 43,000 deaths at typical ages[3], with a total estimated healthcare cost to the NHS and social care of £157 million in 2017[4].

St Helens is a metropolitan borough of Merseyside and covers an area which includes the settlements of Sutton, St Helens, Earlestown, Rainhill, Rainford, Eccleston, Clockface, Haydock, Billinge and Newton-le-Willows. St Helens is home to 183,200 people according to the 2021 Census[5].

St Helens consists of large areas of agricultural land and some industry, having a long association with glassmaking. There are two motorways that run within the Borough, the M6 and M62. The predominant source of pollution within the Borough is nitrogen dioxide from traffic.

St Helens monitors nitrogen dioxide using four continuous monitors and 32 passive diffusion tubes. Particulate matter is measured at one location via a continuous monitor.

The general overall trend within St Helens was decreasing levels of nitrogen dioxide and particulate matter over the last 5 years. However, the 2021 levels of nitrogen dioxide are

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[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, January 2023

[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

[5] ONS: 2021 St Helens Census

higher than the 2020 nitrogen dioxide levels. This expected due to traffic driving increase as the lock down was lifted and more vehicles were on the road. However, the 2022 diffusion tube results show a general reduction trend compared to pre covid levels. All four air quality management areas (AQMAs) have levels of nitrogen dioxide below the national objective at the closest sensitive receptors for 2022. However, the NO_2 concentrations at most stations have not returned to pre-Covid levels. Although the 2022 concentrations may be following the long-term downward trend. It should be noted that the Newton-le-Willows High Street NO_2 99.8th percentile of 99.0 µg m-3 needs to be reported because the annual data capture was less than 85%.

St Helens works with other Local Authorities and key stakeholders through groups such as the Merseyside and Cheshire air quality group.

St Helens has declared four air quality management areas (AQMAs) which can be viewed using the following link https://www.sthelens.gov.uk/business/environmental-health/environmental-protection/air-quality/. There have been no new AQMAs declared since 2011 and there are no further areas which have been identified as requiring declaration.

The Liverpool City Region (LCR) task force closed down in 2020. However, the main output was the combined authority action plan in which can be found using the following link https://www.liverpoolcityregion-ca.gov.uk/improving-our-air-quality/.

Actions to Improve Air Quality

Whilst air quality has improved significantly in recent decades, there are some areas where local action is needed to protect people and the environment from the effects of air pollution.

The Environmental Improvement Plan[6] sets out actions that will drive continued improvements to air quality and to meet the new national interim and long-term $PM_{2.5}$ targets. The National Air Quality Strategy, due to be published in 2023, will provide more information on local authorities' responsibilities to work towards these new targets and

[6] Defra. Environmental Improvement Plan 2023, January 2023

reduce $PM_{2.5}$ in their areas. The Road to Zero[7] details 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. Below are examples of the actions being taken.

Highways Improvement Schemes

Liverpool City Region Hydrogen Bus Project (https://www.liverpoolcityregion-ca.gov.uk/liverpool-city-region-launches-6-4m-hydrogen-bus-project/)

The Liverpool City Region Combined Authority is part of a consortium that was awarded £6.4m in March 2019 from the Office for Low Emission Vehicles to trial hydrogen buses. The bid includes the creation of a new hydrogen refuelling station at the Arriva bus depot on Jackson Street in St Helens. Up to 25 hydrogen-powered buses will be funded with the first trial expected to take place in 2020. The buses emit nothing but water, so will contribute to improving air quality and a zero carbon economy. Funding of £12.5m from the Combined Authority Transforming Cities Fund has been awarded for 20 buses which will be used to serve the 10A route (https://www.liverpoolcityregion-ca.gov.uk/innovative-project-to-bring-new-hydrogen-buses-and-refuelling-facilities-to-liverpool-city-region-set-to-begin/

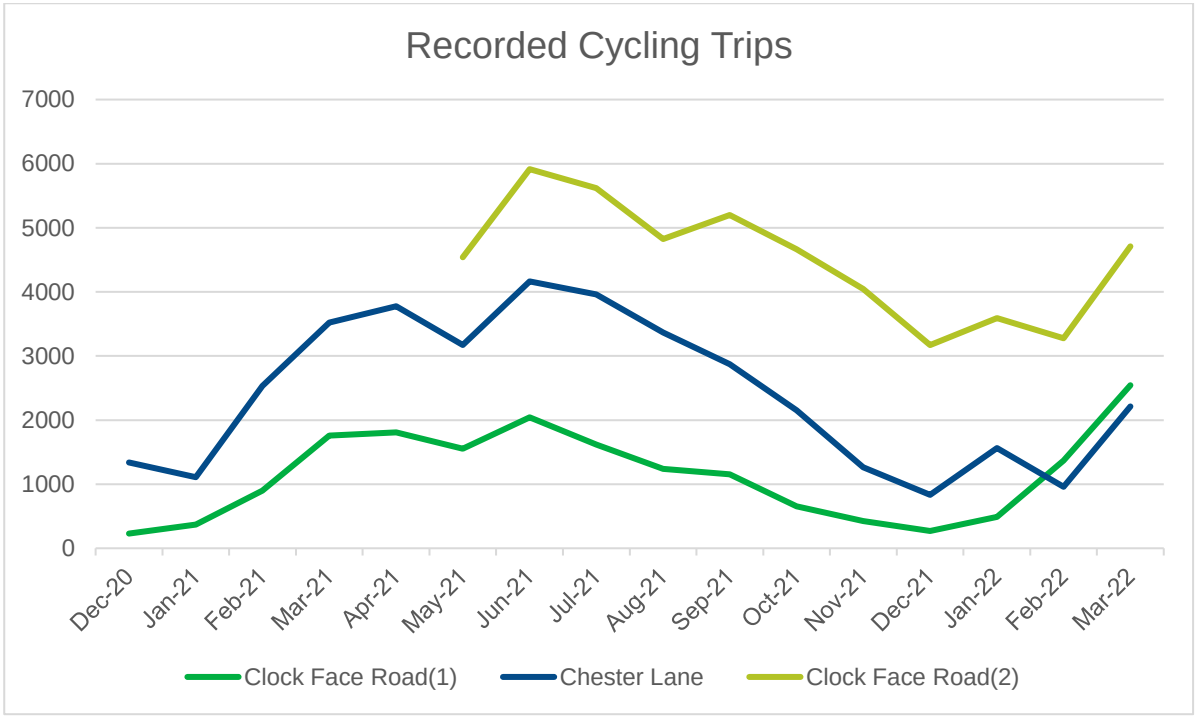
St Helens Southern Gateway (https://www.liverpoolcityregion-ca.gov.uk/new-station-building-and-car-park-extension-for-lea-green-rail-station-confirmed/

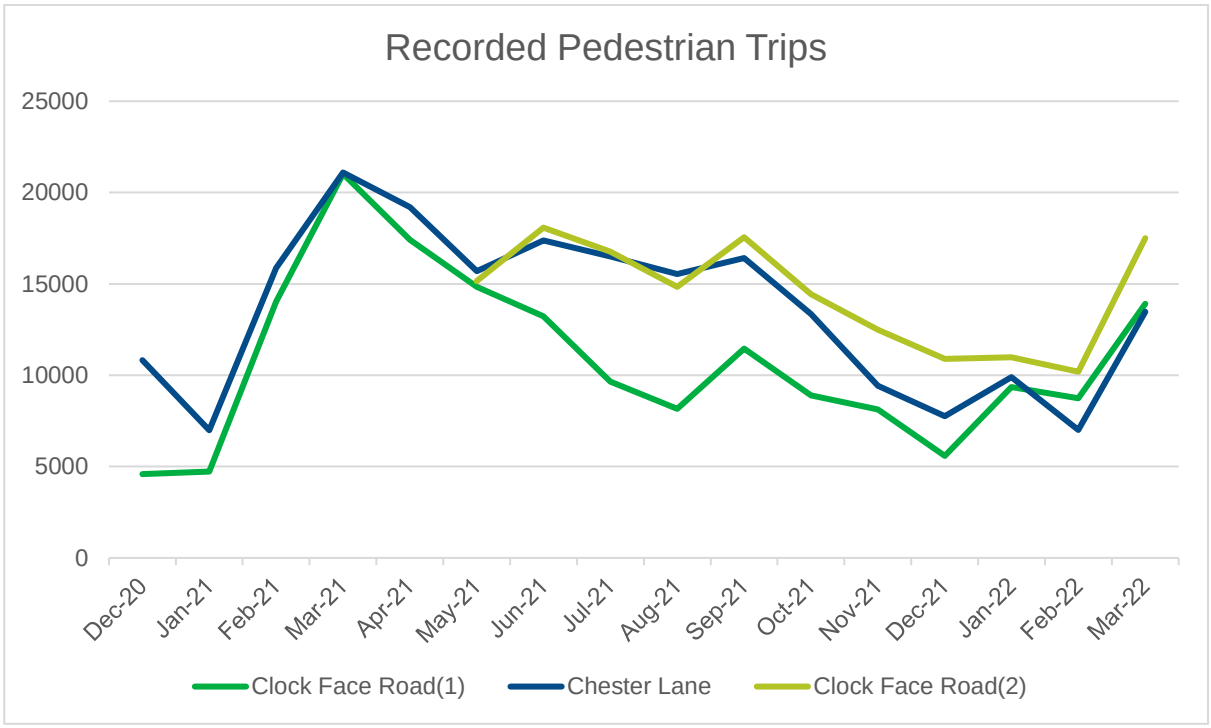
£14.8m project, £4.8m awarded to St Helens for highway works from the Liverpool City Region Transforming Cities Fund. The project includes 6 cycle routes and a 'CYCLOPS' junction – the first in the City Region – to be completed by March 2023. Wider project includes significant upgrades to facilities at Lea Green Station, including better provision for sustainable modes, electric vehicle charging infrastructure, and an improved park & ride facility.

Emergency Active Travel Fund Tranche 1 (www.liverpoolcityregion-ca.gov.uk/work-to-begin-on-six-new-pop-up-cycling-and-walking-routes-for-liverpool-city-region/ Scheme completed

£340,000 awarded to St Helens, part of £1.9m given to the City Region. Physically separated cycle lanes were installed on Chester Lane, Jubits Lane and Clock Face Road (between the roundabout and Gartons Lane). Three sensors have been installed on Chester Lane and Clock Face Road to monitor trips made by all modes. The number of cycle and pedestrian trips recorded each month are shown below.

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


Recorded Cycling Trips
7000
6000
5000
4000
3000
2000
1000
0
Dec-20
Jan-21
Feb-21
Mar-21
Apr-21
May-21
Jun-21
Jul-21
Aug-21
Sep-21
Oct-21
Nov-21
Dec-21
Jan-22
Feb-22
Mar-22
Clock Face Road(1)
Chester Lane
Clock Face Road(2)


Recorded Pedestrian Trips
25000
20000
15000
10000
5000
0
Dec-20
Jan-21
Feb-21
Mar-21
Apr-21
May-21
Jun-21
Jul-21
Aug-21
Sep-21
Oct-21
Nov-21
Dec-21
Jan-22
Feb-22
Mar-22
Clock Face Road(1)
Chester Lane
Clock Face Road(2)

Active Travel Fund Tranche 2 (www.liverpoolcityregion-ca.gov.uk/8m-funding-secured-for-safer-walking-and-cycling-in-the-liverpool-city-region/)

£1.03m awarded to St Helens, part of £7.8m given to the City Region. The proposals for this scheme can be found at www.sthelens.gov.uk/activetravelfund. This includes cycling improvements on Clock Face Road and Warrington Road, extending infrastructure delivered as part of Emergency Active Travel Fund Tranche 1 and St Helens Southern Gateway. A further £90,000 has been awarded to deliver school streets at 3 schools in the borough. All works were due to complete by May 2022.

Cycling and Walking Activities

- **Active St. Helens campaign** (https://www.sthelens.gov.uk/public-health-and-wellbeing/campaigns/active-st-helens/) Matt Cunliffe, Public Health

This public health campaign aims to encourage people who live, work and study in St. Helens to be more active. The campaign promotes cycling, walking and running. As well as cycle maps to download, it provides information on walking and cycling, with case studies to highlight the benefits through social media.

- **Living Streets**

The charity funds an officer dedicated to working in the City Region to encourage walking and active travel in general. The Walk To School Outreach project includes supporting WOW at all schools involved, doing extra activities with any schools that are keen to do more and completing 2 or 3 intensive activities like school route audits which identify barriers to walking and are given to the council. Last year this included working intensively 8 schools in St. Helens. The end of year report for 2019-20 which shows the shift in active travel (walking, cycling, scooting and park and stride) in St. Helens was from 49% to 67%.

- **Led bike rides**

There are numerous led bike rides available across St Helens to encourage the take up of cycling, including Pedal Power (a community group of volunteers offering free, fun and social bike rides for all people across the borough), the Healthy Living Team (provide weekly cycling sessions called 'Wheels for All' for those with additional needs, be that physical or learning needs), Woollybacks Mountain Bike Club and St Helens Cycle Racing Club. St Helens Road Safety Team promote cycling safety and support children and young people to cycle. A number of these activities are just restarting following impacts of COVID lockdowns.

- **Bikeability cycle training**

National Standard on-road cycle training available to young people and children in Merseyside through the national cycle training programme. Organised through schools, Year 5, 6 and 7 pupils are offered Level 2 training which equips children with important skills to help them cycle on quiet roads. Year 7, 8 and 9 in High schools are offered Level 3 training which builds on level 2, and is more advanced, giving skills in dealing with busier roads and roundabouts. Training is free and offered to every school in Merseyside. Between April 2018-April 2019, 1462 children and young people were trained in St Helens - with over 1000 children receiving Level 2 training, 52 SEN training and 325 Level 3

training. Between April 2019 and March 2020, 830 children and young people received Level 2 training, 53 SEN training and 60 receiving Level 3 training. Between April 2020 and March 2021, 180 children and young people were trained in St Helens – with 13 children achieving Level 1, 140 achieving Level 2 and 19 achieving Level 3 (lower figures due to COVID restrictions).

- **Cycle Monitoring**

St Helens has 8 automatic cycle counters included in the Merseyside Cycle Monitoring Report (commissioned by the CA) which is used as evidence for the cycling target in the Merseyside Local Transport Plan. Overall across Merseyside, there has been a 1.56% increase in cycle usage from April 2019 to March 2020 so that the LTP3 based overall indicator is 38.1%. For St Helens in 2018/19, recorded cycle trip rates dropped by 5.5%, however a figure for 2019/20 cannot be determined as 5 of the 8 counters recorded no or insufficient data.

- **Social Prescribing Pilot**

Along with Sefton Council and the Liverpool City Region Combined Authority, the council is currently bidding for funding to establish an active travel social prescribing pilot focused on the Four Acre area. The scheme will allow health professionals to prescribe active travel (either through courses or everyday community use) and work with people in a targeted way to address poor health as a result of inactivity. A funding announcement from government was announced Summer 2022.

- **Future Infrastructure**

St Helens Borough Council is currently developing design drawings for three new high-quality walking and cycling routes across the Borough, along with a local network plan which will set out future priorities for development and investment. It is anticipated these will be published in early 2023 following a public consultation.

Active Travel Tranche 3

The Department for Transport announced a call for bids to a third tranche of the capital Active Travel Fund. A total of £239m was available to local authorities across England, with schemes delivered by 31st March 2023. LCRCA awarded £2,329,450 to St Helens Borough Council based on the summary of work to be delivered over 2022/2023, these include Parr Street, Cowley Hill Liveable Neighbourhoods, LCWIP Route Design, Broad Oak/ Boardmans Lane and Tranche 1 (EATF) measures.

Active Travel Tranche 4

Active Travel Fund 4 is a capital funding opportunity to support uptake of active travel for everyday trips. Funding will be made available in the 2022/2023 financial year, to support delivery of infrastructure that enables walking, wheeling, and cycling. St Helens Borough Council has been awarded with £1,390,000 to prioritise the construction phase of one of our Active Travel Routes Lea Green to Whiston Hospital.

Local Walking and Cycling Infrastructure Plan (LCWIP) – going through cabinet 26th April 2023. https://www.sthelens.gov.uk/article/6901/Why-are-we-developing-an-LCWIP

The St Helens Borough LCWIP has been developed to support and enhance the Liverpool City Region Combined Authority LCWIP as the latter identifies a network of regional-level active travel routes. The St Helens Borough LCWIP provides a plan of more granular, local links to feed the regional network and to facilitate more everyday trips to school, work and local services. The St Helens Borough LCWIP has identified three "core walking zones" at Earlestown and St Helens town centres and Haydock Industrial Estate. Alongside this, the ambitious 10-year plan for investment (to 2033) features ten primary cycle routes, seven secondary cycle routes and an array of local links which will form a dense network grid covering all key settlements and connecting assets.

Draft St Helens Electric Vehicle Strategy and Action Plan - going through cabinet 24th May 2023 https://www.sthelens.gov.uk/article/3494/Electric-vehicles

St Helens Borough Council is developing a strategy and action plan outlining key areas of work which will help support the roll-out of charging infrastructure for electric vehicles across our borough. The Draft St Helens Electric Vehicle Strategy and Action Plan is to seek approval for consultation, to undertake informal market engagement and a procurement exercise to secure a supplier(s) to develop an EV Charging Infrastructure Network across the Borough to meet the needs of residents, businesses, and visitors.

Strategic LCWIP -Active Travel Routes 1,2,3 – continual

Our design teams are working on three routes in the borough: Lea Green to Whiston Hospital and Jubits Lane and A580 East Lancashire Road. The routes will include new cycle routes to protect cyclists from other traffic, safe footpaths for pedestrians, reduced speed limits, and safer crossing points at junctions.

By Ours Cowley Hill Liveable Neighbourhood – to be adopted https://www.by-ours-cowleyhill.org.uk/

By Ours is a partnership project with St Helens Borough Council, Liverpool City Region Combined Authority and Sustrans, funded by the Freshfield Foundation. By ours Cowley Hill is a community project helping residents, businesses and schools design our local streets. Together we're designing a safer, more vibrant neighbourhood where more people walk to the shops and services, stop and chat to each other and children can play out. This will encourage people to take more journeys on foot, bike, or other active transport modes, reducing carbon footprint.

St Helens Multimodal Interchange Project – continual

St Helens Borough Council is working with a range of partners and stakeholders to develop proposals for the regeneration of St Helens Town Centre. The St Helens Multimodal Interchange Project forms part of the town centre regeneration and builds on one of the six core projects mentioned in the St Helens Town Investment Plan "Connected Places". The Multimodal interchange project includes the transformation of the existing bus station facility, enhanced wayfinding and public realm, alongside the provision of improvised pedestrian and cycle connections.

Green Bus Routes – continual

St Helens Borough Council is working with LCRCA on progressing the roll-out of the wider Green Bus Routes programme. The Green Bus Routes will feature measures to prioritise buses over other road traffic with a combination of priority lanes, traffic signal upgrades, remodelled junctions and upgraded, accessible passenger facilities. Ultimately, travelling on a Green Bus Route will mean that passengers can enjoy faster, smoother, safer and more reliable journeys.

Planning

A list of major applications determined in 2022 is outlined in Appendix F, applications were screened for air quality impacts and no applications were deemed to have a significant impact after mitigation.

Fleet Management

The planned fleet replacement programme aims to replace all old petrol and diesel vehicles with zero emission vehicles wherever possible or the latest Euro 6 standard diesel vehicles.

During 2022/23, the fleet replacement programme has seen the introduction of the first OEM hydrogen fuel cell RCV onto St Helens fleet, along with 13 Euro 6 RCV's. Replacing the old Euro 4 & 5 RCV's. A new fully electric Mayoral car was also added to the fleet, replacing the old diesel Mayoral car.

There are currently 30 fully electric small (23) and medium (7) sized vans on order, which are due for delivery in quarter 4 of 2023, along with a fully electric utility vehicle for use in the cemetery.

There are also a further 25 Euro 6 diesel vehicles on order ranging from 3.5t to 18t that will be replacing the old Euro 4 & 5 vehicles.

Part L of the Building Regulations

St Helens are continuing to enforce building regulations and aware of future changes likely to be taking place as a result of the changes/update in Part L.

In addition to the changes to Part L, part F (Ventilation) and Part S (Infrastructure for Charging Electric Vehicles) have been updated. An additional Regulation Part O (Overheating) has also been introduced.

Tree Planting

Throughout 2022, 300 standard trees and 1539 whips (unbranched shoots/plants) as part of the northern forest and sustainable transport routes throughout the borough. These additional trees will assist in the removal of gaseous pollutants in the air, as well as helping to reduce carbon dioxide. The tree species planted include:

- Betula pubescens
- Popula tremula
- Quercus robur
- Salix caprea
- Salix viminalis

- Sorbus aucuparia
- Roas canina
- Acer Campestre
- Betula pendula RB
- Carpinus Betulas Frans Fontaine
- Betula jacquemontii RB

Clean Air Zones

Clean Air Zones for Greater Manchester were proposed for Spring 2022 in Manchester, however, this has been delayed. The Clean Air Plan has been proposed as an alternative. The Clean Air Zone for Liverpool City had originally been proposed for the end of 2022/2023 in Liverpool. These has been rejected and it is unclear what the next steps will be.

The principal concerns raised regarding wider impacts is that the air quality issues in Manchester and Liverpool will be displaced to neighbouring authorities such as St Helens, which borders both the Greater Manchester and Liverpool areas. Regional commercial fleet operators (e.g. taxis, deliveries etc.) may move their more polluting vehicles into St Helens or vehicles may reroute through St Helens to avoid incurring charges.

St Helens will continue to engage with the local authorities concerned as part of the wider consultation exercises and monitor any air quality changes this may have.

In 2021, St Helens Council were successful in winning £650,000 from a Defra grant. The money will be used towards a vehicle retrofit/ replacement scheme within St Helens borough. When the Greater Manchester Clean Air Zone scheme is in place, the grant money will assist in mitigating any negative impacts the Clean Air Zone may have on air quality within the St Helens region. St Helens Chamber have been acting as a third party and have identified over 65 applications so far. They have identified a strong demand for the project and St Helens envisages that there will be no issues spending the grant allocation.

Public Information

Two new air quality websites were launched in November 2019 and were maintained during 2022. One a public information website is for the Liverpool Region, and another is an educational website for schools and parents. These are still available at www.letscleartheairlcr.co.uk and https://kids.letscleartheairlcr.co.uk/.

The Council has an initiative called Liveable Streets aimed at improving streets for walking and cycling to encourage uptake. Comments on ‘problem areas’ and improvements can be left and are used to inform funding bids and works aimed at improving walking/cycling infrastructure improvements.

Conclusions and Priorities

The general trend in NO_2 over the last five years had been a slow downward trend. However, due to the traffic reductions in 2020 due to a response to the COVID-19 pandemic, with the following rise, the air quality data shows an overall decrease since the 2021 results, but in some areas, it appears the results have not gone back to pre-covid levels.

In AQMA 1 all results are now below 40µg/m^3. All concentrations at properties in this AQMA are below the national objective for annual mean NO_2.

In AQMA 2, annual mean concentrations of NO_2 have slowly reduced and have all been below the annual objective concentrations for many years. There are no measured exceedances within AQMA 2 at any location.

The monitored results from AQMA 3 (Borough Road) show fluctuating results and not a downward trend, this is probably due to the local conditions (large incline and street canyon) as the exceedances are only seen where terraced houses line either side of the street at diffusion tube locations 19 and 24. The fluctuations over the past 5 years are likely due to the impact of the weather and not interventions. More local targeted interventions are being planned in this area to secure improvements in air quality. In 2022, no there were no exceedances in the diffusion tube or automatic monitor data with the exception at Diffusion Tube locations 19 and 24 where an annual mean of 40.5 µg/m^3 was recorded.

The general trend is downwards in AQMA 4 and all monitored data in AQMA 4 is below the national objective for annual mean NO_2. The monitored levels of Nitrogen dioxide in this location have been below the national objective for well over five years. However, due to planning applications being granted, in which traffic flow through the AQMA could be affected, it is proposed to maintain the AQMA.

The main priority for reducing air quality in St Helens will be minimising impacts from new developments and providing targeted interventions to reduce Nitrogen dioxide. In 2022, St Helens council begun the process of updating the Air Quality Action Plan (AQAP) and to implement as many measures as possible to reduce nitrogen dioxide emissions. It is the aim to have this complete by the end of 2023.

For AQMA 3 (Borough Road), the challenge will be finding innovative solutions to improve air quality in AQMA 3 and implementing all the projects in the draft action plan with limited budget and resources.

Local Engagement and How to get Involved

An educational air quality website for children and schools was launched in 2019. A launch event with schools and key decision makers was held in Liverpool. Packs were sent out to all schools within the Liverpool City Region and a programme for schools to undertake their own air quality assessments using diffusion tubes was launched at the beginning of 2020. Further engagement with schools was placed on hold due to the restrictions in place as a result of the pandemic. It is hoped that the website will enhance the learning and engagement around air quality issues in schools and further engagement with schools can occur in the future. The website can be found at https://kids.letscleartheairlcr.co.uk/ .

An air quality website for the public within the Liverpool City Region was also launched and maintained in 2020. This can be found at www.letscleartheairLCR.co.uk and contains information and publications relating to air quality within the LCR. Local air quality information can also be found on the councils dedicated web pages at https://www.sthelens.gov.uk/business/environmental-health/environmental-protection/air-quality/ .

All air quality information specific to St Helens Borough Council can be found at https://www.sthelens.gov.uk/article/5188/Air-quality-monitoring.

Local Responsibilities and Commitment

This ASR was prepared by the Place Services Department of St Helens Council with the support and agreement of the following officers and departments:

- Ruth du Plessis- Director of Public Health
- Mike Peterson – Head of Regulatory Services
- David Saville- Principal Transport Officer (Policy, Place Services)
- John Boden – Park and Area Landscape Manager (Operations Department)
- Gareth Tyson – Manager - Network Management (Urban Traffic Control / Street Lighting) (Operations Department)
- Gila Middleton - Senior Planning Officer (Development Control) (Place Services)
- John Murdock - Building Control Manager (Strategic Growth Department)
- Michael Wolffe- Climate Change Officer

This ASR has been approved by:

Mike Peterson, Head of Regulatory Services and Ruth Du Plessis, Director of Public Health.

This ASR has been signed off by a Director of Public Health.

Head of Regulation

Director of Public Health

If you have any comments on this ASR please send them to Emma Woodrow at:

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Figures

Tables

1 Local Air Quality Management

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

The LAQM process places an obligation on all local authorities to regularly review and assess air quality in their areas, and to determine whether or not the air quality objectives are likely to be achieved. Where an exceedance is considered likely the local authority must declare an Air Quality Management Area (AQMA) and prepare an Air Quality Action Plan (AQAP) setting out the measures it intends to put in place in order to achieve and maintain the objectives and the dates by which each measure will be carried out. This Annual Status Report (ASR) is an annual requirement showing the strategies employed by St Helens 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 18 months. The AQAP should specify how air quality targets will be achieved and maintained, and provide dates by which measures will be carried out.

A summary of AQMAs declared by St Helens Council can be found in Table 2.1. The table presents a description of the four AQMAs that are currently designated within St Helens. Appendix D: Map(s) of Monitoring Locations and AQMAs provides maps of AQMAs and also the air quality monitoring locations in relation to the AQMAs. The air quality objectives pertinent to the current AQMA designations are as follows:

- NO_2 annual mean.

Table 2.1 – Declared Air Quality Management Areas

AQMA Name	Date of Declaration	Pollutants and Air Quality Objectives	One Line Description	Is air quality in the AQMA influenced by roads controlled by Highways England?	Level of Exceedance: Declaration	Level of Exceedance: Current Year	Number of Years Compliant with Air Quality Objective	Name and Date of AQAP Publication	Web Link to AQAP
AQMA 1 M6 Motorway	23rd April 2009	NO_2 Annual Mean	An area encompassing the M6 running its entire length through the Borough	YES	65	37	3	AQAP for AQMA 1, March 2013 (2023 AQAP in preparation)	In draft
AQMA 2 Newton le Willows High Street	23rd April 2009	NO_2 Annual Mean	Residential properties along High Street Newton le Willows (A49) between the junctions of Ashton Road and Church Street	NO	40.1	27	10+	AQAP for AQMA 1, March 2013 (2023 AQAP in preparation)	In draft
AQMA 3 Borough Road	25th November 2011	NO_2 Annual Mean	An area encompassing residential properties along Borough Road between the junctions of Westfield Street and Prescot Road, including 5-9 Alexandra Drive and 1-17 Prescot Road	NO	64	**40.5***	1	AQAP for AQMA 1, March 2013 (2023 AQAP in preparation)	In draft

AQMA 4 Linkway	25th November 2011	NO_2 Annual Mean	Residential development adjacent to the Linkway (A570)	NO	42.11	28	9	AQAP for AQMA 1, March 2013 (2023 AQAP in preparation)	In draft

*Diffusion Tube Data. Tubes 19 and 24.

☒ **St Helens Council confirm the information on UK-Air regarding their AQMA(s) is up to date.**

☒ **St Helens Council confirm that all current AQAPs have been submitted to Defra.**

2.2 Progress and Impact of Measures to address Air Quality in St Helens

Defra's appraisal of last year's ASR concluded that St Helens Council should progress with the Air Quality Action Plan.

St Helens Council has taken forward a number of direct measures during the current reporting year of 2022 in pursuit of improving local air quality. Details of all measures completed, in progress or planned are set out in Table 2.2. 2022 measures are included within Table 2.2, with the type of measure and the progress St Helens Council have made during the reporting year of 2022 presented. Where there have been, or continue to be, barriers restricting the implementation of the measure, these are also presented within Table 2.2.

More detail on these measures can be found in their respective Action Plans. Key completed measures are:

- A580 Pewfall junction improvement scheme which aims to reduce traffic queuing in addition to dedicated cycle and pedestrian crossing which was completed in October 2020.
- A57 Sherdley Roundabout improvement scheme will provide toucan crossing facilities widened footways and widened lane widths to improve traffic flows.
- A57 Warrington Road safety improvement scheme to smooth flow and provide pedestrian and cycling facilities.
- Sustainable Transport Enhancement Package (STEP) was a six-year programme which ended in March 2021 aimed at delivering new cycle routes to increase cycling and walking.
- Sustainable Urban Development Scheme ended December 2021. This scheme was designed to construct new cycle paths.
- Emergency Active Travel Fund Tranche 1 and 2 to create cycling improvements, increase the number of cycling and walking trips and to deliver school; streets at three schools in the borough.
- Smart driving technology project and in cab heating to reduce idling and encourage more efficient driving and was completed in 2021.

St Helens Council expects the following measures to be completed over the course of the next reporting year:

- Local Walking and Cycling Infrastructure Plan (LCWIP) which provides a plan of more granular, local links to feed the regional network and to facilitate more everyday trips to school, work and local services.
- St Helens Electric Vehicle Strategy and Action Plan is currently in draft. The document outlines key areas of work which will help support the roll-out of charging infrastructure for electric vehicles across our borough.

St Helens's priorities for the coming year are:

- Issuing the Air Quality Action Plan to Defra for approval.
- Using the Defra grant funds for the vehicle retrofit/ replacement scheme.
- Using the Defra grant funds for the indoor air quality project.

St Helens Council worked to implement these measures in partnership with the following stakeholders during 2022:

- Liverpool City Region & Cheshire Air Quality Technical Group (AQTECH).

The principal challenges and barriers to implementation that St Helens Council anticipates facing are funding and resource challenges.

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

- Updating the Action Plan due to resourcing. St Helens are confident it will be issues to Defra in 2023.

St Helens Council anticipates that the measures stated above and in Table 2.2 will achieve compliance in the following AQMAs:

- High Street, Newton
- M6/Southworth Road
- St Helens Linkway.

Whilst the measures stated above and in Table 2.2 will help to contribute towards compliance, St Helens Council anticipates that further additional measures not yet prescribed will be required in subsequent years to achieve compliance and enable the revocation of Borough Road.

Table 2.2 – Progress on Measures to Improve Air Quality

Measure No.	Measure	Category	Classification	Year Measure Introduced in AQAP	Estimated / Actual Completion Date	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	Acoustic/AQ barrier on M6 flyover	Traffic Management	Strategic highway improvements, Re- prioritising road space away from cars, including Access management, Selective vehicle priority, bus priority, high vehicle occupancy lane	Planning phase	2021/2022	Highways England	HE	unknown at this present time	unknown at this present time	unknown at this present time	unknown at this present time	unknown at this present time	Monitored NO_2 levels	In planning phase	St Helens Council In discussion – dependent on results of planning phase
2	Use of hard shoulder running (M6 J21a to J24)	Traffic Management	UTC, Congestion management, traffic reduction	Planning phase	2021/2022	Highways England	HE	unknown at this present time	unknown at this present time	unknown at this present time	unknown at this present time	unknown at this present time	Monitored NO_2 levels	In planning phase	Other studies have shown hard shoulder running to increase pollutants at close by receptors, needs to be done in conjunction with mitigating measures. Dependent upon HE.
3	Anti-idling campaign	Traffic Management	Anti-idling enforcement	2018	Soft approach ongoing, second phase planned	St Helens Council	Local Authority	unknown at this present time	unknown at this present time	unknown at this present time	unknown at this present time	unknown at this present time	Reducing background emissions	To adopt legislation and authorise key services to enforce anti-idling legislation	None
4	Optimise flow on key routes (SCOOT)	Traffic Management	UTC, Congestion management, traffic reduction	2016	2020	St Helens Council	Complete	unknown at this present time	unknown at this present time	unknown at this present time	unknown at this present time	unknown at this present time	Reducing emissions on key routes. Reduction of between 2.1-3.3ug/m3 at key receptors over last 5 years.	Phase 1 complete on A580 phase 2 ongoing. Not operational at the moment due to system issues. Due to be running again in 2023.	Length of works
5	Travel awareness campaign	Promoting Travel Alternatives	Promotion of walking	2017	Ongoing	St Helens Council, Living Streets	Ongoing	unknown at this present time	unknown at this present time	unknown at this present time	unknown at this present time	unknown at this present time	Number of children walking to school/work	Participate in Arrive Happy and Living Streets campaigns.	Funding streams for future years.
6	Cycling promotion	Promoting Travel Alternatives	Promotion of cycling	2019	Ongoing	Local Authority transport dept.	STEP funding	unknown at this present time	unknown at this present time	unknown at this present time	unknown at this present time	unknown at this present time	Number of people using cycle hubs and purchasing	Off road cycle programme extended. Cycle hub in Sherdley Park.	Funding streams for future years.

Measure No.	Measure	Category	Classification	Year Measure Introduced in AQAP	Estimated / Actual Completion Date	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
													bikes through the cycle to work scheme.	Participants in cycle to work scheme.	
7	Major Junction Improvements at Windle Island, Pewfall and St Helens Junction	Traffic Management	UTC, Congestion management, traffic reduction	2019	2022	Local Authority Transport dept.	Local Authority	unknown at this present time	unknown at this present time	unknown at this present time	unknown at this present time	unknown at this present time	Queue times, NO_2 reduction	Completed	Funding streams for future years.
8	Eco driving	Vehicle Fleet Efficiency	Driver training and ECO driving aids	2017	Complete	St Helens Council	Energy Saving trust/Defra funding	unknown at this present time	unknown at this present time	unknown at this present time	unknown at this present time	unknown at this present time	Fuel efficiency	Completed	None
9	Fleet Efficiency improvements	Promoting Low Emission Transport	Company Vehicle Procurement - Prioritising uptake of low emission vehicles	2017	Ongoing	St Helens Council	Local Authority	unknown at this present time	unknown at this present time	unknown at this present time	unknown at this present time	unknown at this present time	Fuel efficiency	Ongoing	Funding streams for future years.
10	Green the taxi fleet	Promoting Low Emission Transport	Taxi Licensing conditions	2021	2021	Local Authority Licensing dept with other Merseyside LAs	Local Authority.	unknown at this present time	unknown at this present time	unknown at this present time	unknown at this present time	unknown at this present time	Reduce emissions on major routes	Dependent upon licensing policy	Planning phase
11	Supplementary planning guidance	Policy Guidance and Development Control	Air Quality Planning and Policy Guidance	2020	2024	Local Authority Planning dept	Local Authority	unknown at this present time	unknown at this present time	unknown at this present time	unknown at this present time	unknown at this present time	Mitigation measures, more sustainable development	Planing policy upgraded to include references to EVs and offsetting	Planning policy still in draft pending review.
12	Parr St and Boardmans / Chancery Lane have both utilised the Plus+ solution	Traffic Management	UTC, Congestion management, traffic reduction	2022	2022	St Helens Council	Local Authority	unknown at this present time	unknown at this present time	unknown at this present time	unknown at this present time	unknown at this present time	CO2 Reduction	Completed	None

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

As detailed in Policy Guidance LAQM.PG22 (Chapter 8), 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.

St Helens Council is taking the following measures to address $PM_{2.5}$:

- Some of the measures within the action plan will address $PM_{2.5}$ emissions, however additional measures put in place to specifically tackle emissions from $PM_{2.5}$ are the enforcement of the Smoke control areas within St Helens. Most of the Borough is designated as a Smoke Control area. Officers give out advice and information to residents on DEFRA approved exempt appliances and the correct fuels to use.
- The updated air quality action plan will implement as many measures as possible to tackle PM2.5 emissions.
- Raise awareness of the correct disposal routes for waste, not to burn waste, also to compost green waste and we provide a green waste collection service.
- Each year St Helens undertakes operation Good Guy to remove combustible materials, waste and bonfire materials from all public space, open ground, and gardens to limit the number of bonfires. St Helens advertise this, and residents are able to report build ups of waste to the council for removal.
- We respond to complaints about commercial premises using burning as a method of waste disposal and respond to nuisance complaints about neighbours consistently burning waste under the Environmental Protection Act 1990.
- St Helens Council actively promotes eco-driving which include the reduced braking and tyre wear which is a cause of $PM_{2.5}$.
- All permitted premises and planning applications are encouraged to utilise gas fired boilers instead to diesel powered boilers to reduce the $PM_{2.5}$ and PM_{10} emissions.

As a statutory consultee on planning applications, we ask for dust management plans to limit the amount of dust on site, and to stop burning of any waste arising.

Information is available on the council website and is included in the educational website aimed at children and schools.

In 2022, St Helens, along with the Merseyside combined authority will be involved in the consultations of Environment Act Targets (in line with UK100 response). The responses will focus on the changes to the $PM_{2.5}$ updated guidelines.

In 2022, St Helens and Warrington Borough Council submitted in an application for the Defra Grant bid. The project aims to help increase awareness of indoor air quality, including raising awareness of $PM_{2.5}$ pollutants from log burning. Early in 2023, St Helens and Warrington Borough Councils were notified as to the success of the bid. The project began in March 2023.

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

This section sets out the monitoring undertaken within 2022 by St Helens Council and how it compares with the relevant air quality objectives. In addition, monitoring results are presented for a five-year period between 2018 and 2022 to allow monitoring trends to be identified and discussed.

3.1 Summary of Monitoring Undertaken

3.1.1 Automatic Monitoring Sites

St Helens Council undertook automatic (continuous) monitoring at 4 sites during 2022. Table A.1 in Appendix A shows the details of the automatic monitoring sites. NB. Local authorities do not have to report annually on the following pollutants: 1,3 butadiene, benzene, carbon monoxide and lead, unless local circumstances indicate there is a problem. The https://www.ukairquality.net/ page presents automatic monitoring results for St Helens Council, with automatic monitoring results also available through the UK-Air website .

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

3.1.2 Non-Automatic Monitoring Sites

St Helens Council undertook non- automatic (i.e. passive) monitoring of NO_2 at 32 sites during 2022. Table A.2 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.

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)

Table A.3 and Table A.4 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 2022 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.

Table A.5 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.

All monitoring results were below the annual mean for nitrogen dioxide at all the automatic monitoring sites and at all the diffusion tube locations with the exception of DT 19 and 24 which are located at 55 Borough Road. No exceedances were found to be above the 60µg/m3 indicating that there are no exceedances of the 1- hour mean objective.

All AQMAs had no exceedances of the annual mean objective with the exception of diffusion tubes 19 and 24 which are located at 55 Borough Road within the Borough Road AQMA. There are no exceedances of the daily or annual mean objective in any of the other monitored locations.

It should be noted for the diffusion tube monitoring, three months of data are missing due to administrative errors. Annualisation was carried out on diffusion tubes 2, 3, 6, 7, 10, 11, 15 and 31.

There are three sets of co-located duplicate diffusion tubes at the Linkway monitor, the Southworth Road monitor and the High Street monitor. There was poor overall precision with the diffusion tubes at Linkway, so this was excluded from the bias adjustment

calculations. There was less than 85% data capture at the High Street monitor so this was also excluded from the bias adjustment. A national factor was used instead as it can be debated that a national factor will be more representative than just using the bias adjustment factor from Southworth Road.

3.2.2 Particulate Matter (PM_{10})

Table A.6 in Appendix A: Monitoring Results compares the ratified and adjusted monitored PM_{10} annual mean concentrations for the past five years with the air quality objective of 40µg/m^3.

Table A.7 in Appendix A compares the ratified continuous monitored PM_{10} daily mean concentrations for the past five years with the air quality objective of 50µg/m^3, not to be exceeded more than 35 times per year.

The monitored annual mean concentration for 2022 at the Linkway analyser (LW) was 19 µg/m^3. There were eight exceedances of the PM_{10} daily mean. These results higher than 2020 and 2021.

3.2.3 Particulate Matter ($PM_{2.5}$)

Table A.8 in Appendix A presents the ratified and adjusted monitored $PM_{2.5}$ annual mean concentrations for the past five years.

The 2022 national bias factor was applied to the 2022 PM_{10} results to give an estimate of the $PM_{2.5}$ annual mean concentrations. This year, the same was carried out for the 2021 ata. As with the PM_{10} results, the 2022 annual mean estimation was higher than the 2021 estimated annual mean concentration.

Appendix A: Monitoring Results

Table A.1 – Details of Automatic Monitoring Sites

Site ID	Site Name	Site Type	X OS Grid Ref (Easting)	Y OS Grid Ref (Northing)	Pollutants Monitored	In AQMA? Which AQMA?	Monitoring Technique	Distance to Relevant Exposure (m) (1)	Distance to kerb of nearest road (m) (2)	Inlet Height (m)
LW	St Helens Linkway	Roadside	350815	395260	NO_2, PM_{10}	YES AQMA 4	Chemiluminescent; BAM	165	5.35	2.44
SR	St Helens Southworth Road	Roadside	360045	395643	NO_2	YES AQMA1	Chemiluminescent	10	3.2	2
HS	St Helens High Street	Roadside	358975	395804	NO_2	YES AQMA 2	Chemiluminescent	1.06	3.65	2
BR	St Helens Borough Road	Roadside	350403	394961	NO_2	YES AQMA 3	Chemiluminescent	23	2.5	1.48

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 – 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)
1	170 Southworth Road	Roadside	360109	395661	NO_2	No	0.0	16.3	No	2.0
2	1 Skitters Grove	Roadside	356549	399577	NO_2	No	0.0	22.8	No	2.0
3	Taylor park	Urban Background	349485	394766	NO_2	No	32.2	N/A	No	2.4
4	27 Syston Avenue	Suburban	352451	396735	NO_2	No	0.0	12.9	No	1.7
5	151 west End Road	Suburban	353891	396714	NO_2	No	0.0	4.5	No	1.9
6	Parkside Lampost	Suburban	359498	394646	NO_2	No	45.4	1.7	No	2.4
7, 10, 31	160 Southworth Road	Roadside	350403	394961	NO_2	No	10.0	3.2	Yes	2.0
8	157 high Street	Roadside	358774	395880	NO_2	Yes, Newton High Street AQMA (No.2)	0.0	10.6	No	1.9
9	3 Waterworks cottages	Roadside	359915	395639	NO_2	No	0.0	11.5	No	1.8
11	Southworth Road LP 11	Roadside	360065	395653	NO_2	No	0.0	4.6	No	1.9
13	22 Union Bank lane	Roadside	352391	390301	NO_2	No	0.0	7.6	No	1.8
14, 23	19 High Street	Roadside	359147	395705	NO_2	Yes, Newton High Street AQMA (No.2)	0.0	5.9	No	2.4
15	2 Parkside Cottages	Roadside	358220	397077	NO_2	No	0.0	27.4	No	1.7

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)
16	297 Liverpool Road	Roadside	354377	397475	NO_2	No	0.0	14.3	No	2.1
17	446 Liverpool Road	Roadside	354403	397561	NO_2	No	0.0	7.9	No	1.8
18, 22	Linkway Monitor	Roadside	350815	395265	NO_2	Yes, AQMA No. 4 (Reflection Court)	165.0	5.4	Yes	2.4
19, 24	55 Borough Road	Roadside	350438	395005	NO_2	Yes, AQMA No.3 (Borough Rd)	0.0	2.6	No	2.3
20	33 Langholm Road	Suburban	355322	399625	NO_2	No	0.0	2.6	No	2.3
21	24 Greenfield Road	Roadside	350135	396128	NO_2	No	0.0	6.2	No	1.8
25, 32	High Street Monitor	Roadside	358975	395804	NO_2	Yes, Newton High Street AQMA (No.2)	1.1	3.7	Yes	2.6
26	33 Blackbrook Road	Roadside	353129	396240	NO_2	No	0.0	6.4	No	1.9
27	51 Carr Mill Road	Roadside	352336	397653	NO_2	No	0.0	13.6	No	1.1
28	206 Borough Road	Roadside	350156	394848	NO2	Yes, AQMA No.3 (Borough Rd)	0.0	6.4	No	1.9
29	25 Prescot Road	Roadside	350456	395135	NO2	No	0.0	1.9	No	2.4
30	4 Union Bank Lane	Roadside	352262	390226	NO2	No	0.0	7.5	No	1.9

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)
33	Warrington Road, Rainhill Stoops	Roadside	350386	389936	NO2	No	5.1	11.9	No	1.9

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.3 – Annual Mean NO_2 Monitoring Results: Automatic Monitoring (µg/m^3)

Site ID	X OS Grid Ref (Easting)	Y OS Grid Ref (Northing)	Site Type	Valid Data Capture for Monitoring Period (%) (1)	Valid Data Capture 2022 (%) (2)	2018	2019	2020	2021	2022
LW	350815	395260	Roadside	100	100	33	33	25	26	28
SR	360045	395643	Roadside	100	99.4	**45**	**43**	34	34	37
HS	358975	395804	Roadside	100	79.7	35	31	30	30	27
BR	350403	394961	Roadside	100	96.9	30	29	26	24	25

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

☒ **Reported concentrations are those at the location of the monitoring site (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**.

All means have been "annualised" as per LAQM.TG22 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%).

Table A.4 – 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 2022 (%) [2]	2018	2019	2020	2021	2022
1	360109	395661	Roadside	100	75.9	25.0	24.9	23.2	24.1	18.9
2	356549	399577	Roadside	100	53.4	25.9	24.7	19.2	23.4	15.0
3	349485	394766	Urban Background	100	49.6	13.2	14.3	11.2	14.0	11.4
4	352451	396735	Suburban	100	75.9	20.5	20.9	18.8	23.3	20.2
5	353891	396714	Suburban	100	75.9	22.3	22.5	20.2	21.8	18.5
6	359498	394646	Suburban	100	58.1	21.3	21.5	17.3	20.9	17.7
7, 10, 31	350403	394961	Roadside	100	68.2	34.9	31.4	31.5	36.5	27.8
8	358774	395880	Roadside	100	75.9	24.1	23.0	19.8	23.4	20.3
9	359915	395639	Roadside	100	75.9	21.8	21.7	16.7	21.2	17.8
11	360065	395653	Roadside	100	60.5		34.0	31.7	35.1	28.9
13	352391	390301	Roadside	100	75.9	24.4	22.2	19.0	22.5	17.0
14, 23	359147	395705	Roadside	100	75.9	31.6	30.7	28.0	34.4	25.5
15	358220	397077	Roadside	100	31.8	28.4	27.1	25.9	26.6	23.2
16	354377	397475	Roadside	100	75.9	22.2	20.7	18.2	22.0	17.3
17	354403	397561	Roadside	100	75.9	27.5	28.4	23.1	26.4	22.6
18, 22	350815	395265	Roadside	100	75.9	30.4	30.7	25.4	30.8	27.1
19, 24	350438	395005	Roadside	100	75.9	**48.1**	**44.3**	**42.7**	**49.7**	**40.5**
20	355322	399625	Suburban	100	75.9		15.0	13.5	14.1	12.3
21	350135	396128	Roadside	100	75.9	23.4	23.8	21.1	25.7	21.9
25, 32	358975	395804	Roadside	100	75.9	31.5	30.0	24.7	31.2	26.0
26	353129	396240	Roadside	100	75.9	27.5	25.0	24.2	28.5	22.9
27	352336	397653	Roadside	100	75.9	19.5	22.2	18.7	24.3	21.2
28	350156	394848	Roadside	100	75.9	25.7	25.2	22.1	27.3	21.7
29	350456	395135	Roadside	100	75.9	25.5	25.6	21.4	25.9	21.4

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 2022 (%) (2)	2018	2019	2020	2021	2022
30	352262	390226	Roadside	100	75.9	20.7	19.8	17.4	20.4	16.4
33	350386	389936	Roadside	100	75.9	33.4	30.7	27.1	30.4	26.1

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

☒ **Diffusion tube data has been bias adjusted.**

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

Notes:

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 **bold and underlined**.

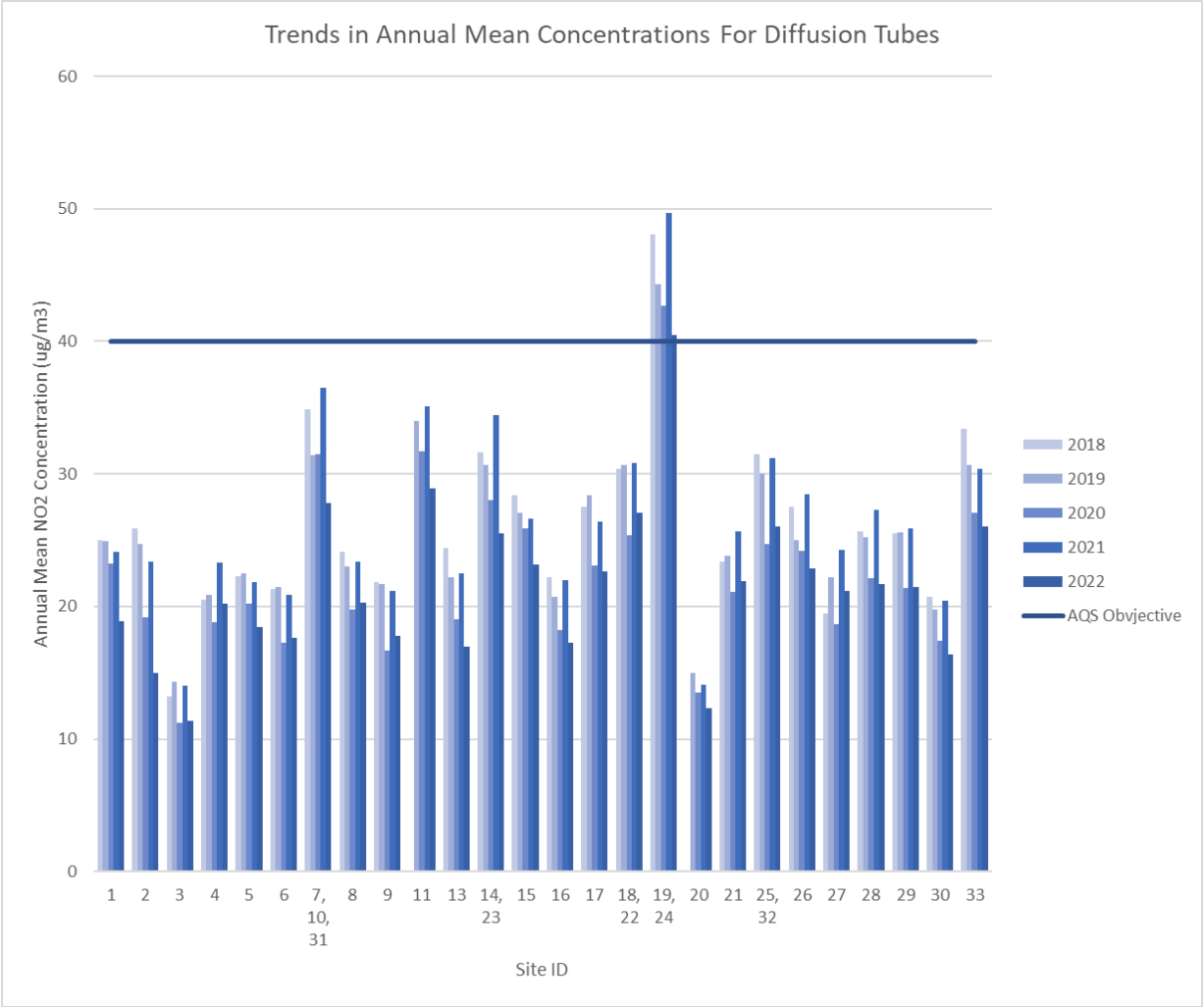
Means for diffusion tubes have been corrected for bias. All means have been “annualised” as per LAQM.TG22 if valid data capture for the full calendar year is less than 75%. See Appendix C for details.

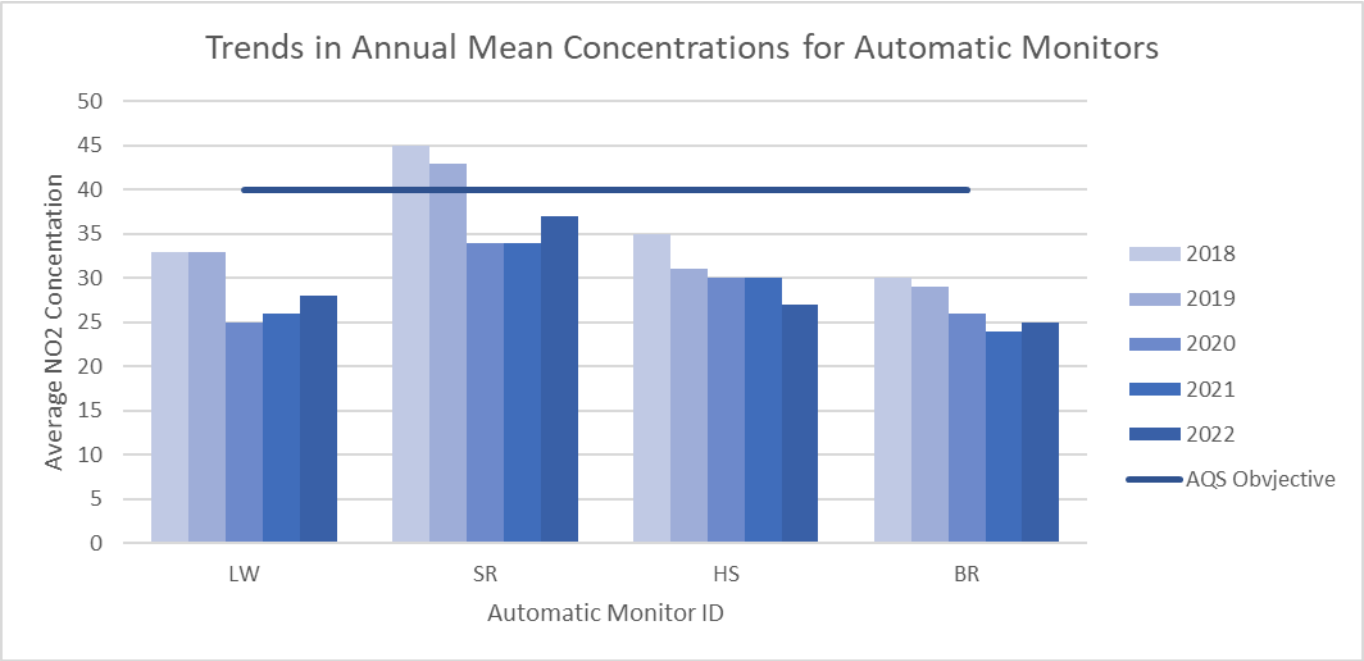
Concentrations are those at the location of monitoring and not those following any fall-off with distance adjustment.

(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





For the NO_2 annual mean concentrations for diffusion tubes there has been a general increase in NO_2 levels since 2020, demonstrates levels are starting to return to normal since the impacts of COVID-19 restrictions and lockdowns. There are no exceedances of the annual mean objective in 2022 with the exception of DT 19 and 24 where an exceedance of 40.5 µg/m^3 was recorded.

For the NO_2 annual mean concentrations for the four automatic monitors, there have been no exceedances over the past five years with the exception of Southworth Road where there were exceedances In 2018 and 2019. All monitors average NO_2 annual mean concentrations have increased in in 2022 compared to 2021 with the exception of High Street in which 2022 levels are lower than 2021. This could be due to the fact there was a less than 85% data capture at the site. The results compared to pre-covid levels demonstrate that air quality hasn't fully reverted back to normal.

Table A.5 – 1-Hour Mean NO_2 Monitoring Results, Number of 1-Hour Means > 200µg/m^3

Site ID	X OS Grid Ref (Easting)	Y OS Grid Ref (Northing)	Site Type	Valid Data Capture for Monitoring Period (%) (1)	Valid Data Capture 2022 (%) (2)	2018	2019	2020	2021	2022
LW	350815	395260	Roadside	100	100	0	0	0	0	0
SR	360045	395643	Roadside	100	99.4	0	0	0	0	0
HS	358975	395804	Roadside	100	79.7	0	0	0	0	0
BR	350403	394961	Roadside	100	96.9	0	0	0	0	0

Notes:

Results are presented as the number of 1-hour periods where concentrations greater than 200µg/m^3 have been recorded.

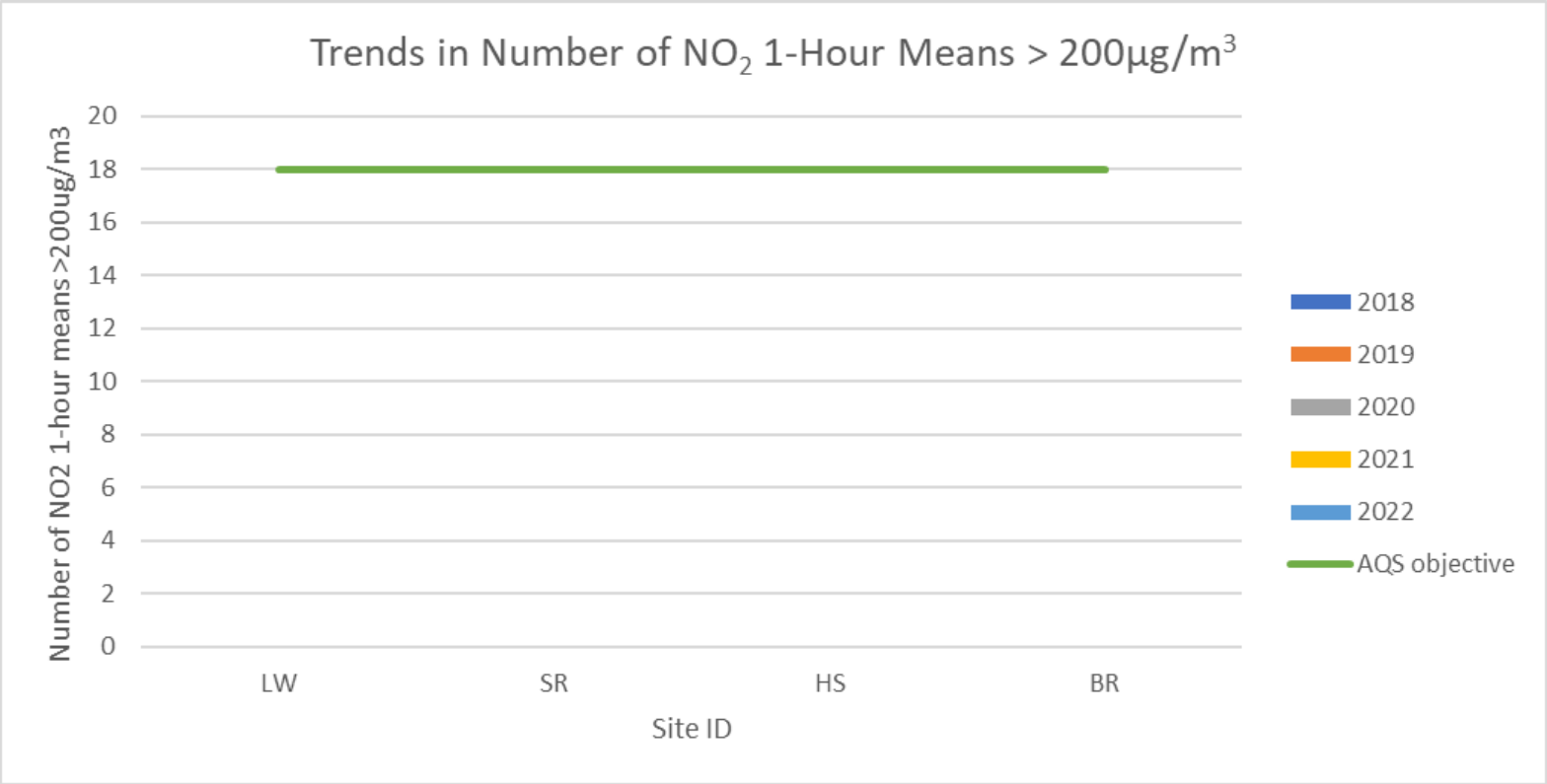
Exceedances of the NO_2 1-hour mean objective (200µg/m^3 not to be exceeded more than 18 times/year) are shown in **bold**.

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

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

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

Figure A.2 – Trends in Number of NO_2 1-Hour Means > 200µg/m³



There have been no exceedances greater than 200 µg/m³ in the past five years for any of the four automatic stations. This is below the annual objective of 18 times per year.

Table A.6 – Annual Mean PM_{10} Monitoring Results ($\mu g/m^3$)

Site ID	X OS Grid Ref (Easting)	Y OS Grid Ref (Northing)	Site Type	Valid Data Capture for Monitoring Period (%) (1)	Valid Data Capture 2022 (%) (2)	2018	2019	2020	2021	2022
LW	350815	395260	Roadside	100	94	18	20	18	18	19

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

Notes:

The annual mean concentrations are presented as $\mu g/m^3$.

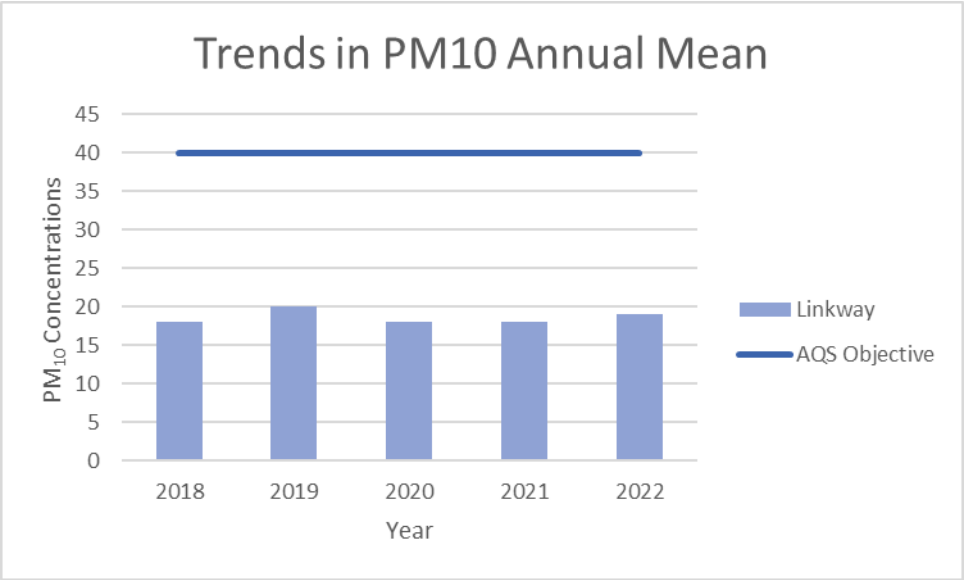
Exceedances of the PM_{10} annual mean objective of 40$\mu g/m^3$ are shown in **bold**.

All means have been "annualised" as per LAQM.TG22 if valid data capture for the full calendar year is less than 75%. See Appendix C for details.

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

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

Figure A.3 – Trends in Annual Mean PM_{10} Concentrations



For the past five years, the annual mean concentration of PM_{10} has been at less than half the concentration of the 40 µg/m3 objective at the Linkway automatic monitor. The 2022 value was slightly higher than the 2020 and 2021 values.

Table A.7 – 24-Hour Mean PM_{10} Monitoring Results, Number of PM_{10} 24-Hour Means > 50µg/m^3

Site ID	X OS Grid Ref (Easting)	Y OS Grid Ref (Northing)	Site Type	Valid Data Capture for Monitoring Period (%) (1)	Valid Data Capture 2022 (%) (2)	2018	2019	2020	2021	2022
LW	350815	395260	Roadside	100	94	1	9	1	1	8

Notes:

Results are presented as the number of 24-hour periods where daily mean concentrations greater than 50µg/m^3 have been recorded.

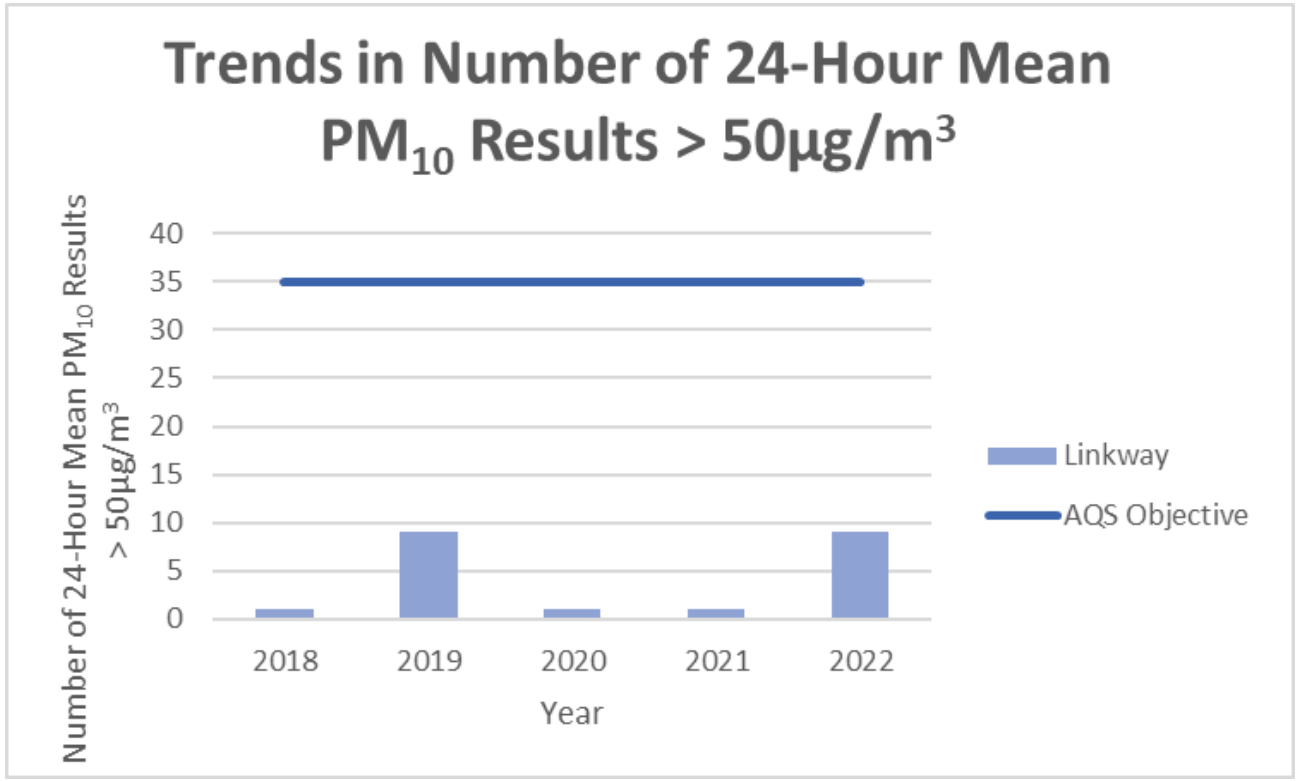
Exceedances of the PM_{10} 24-hour mean objective (50µg/m^3 not to be exceeded more than 35 times/year) are shown in **bold**.

If the period of valid data is less than 85%, the 90.4th percentile of 24-hour means is provided in brackets.

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

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

Figure A.4 – Trends in Number of 24-Hour Mean PM_{10} Results > 50µg/m³



For the past five years, the annual mean concentration of PM_{10} has been at less than half the concentration of the 40 µg/m3 objective at the Linkway automatic monitor. The 2022 value was higher than the values in 2020 and 2021 but lower than the 2019 value.

Table A.8 – Annual Mean $PM_{2.5}$ Monitoring Results ($\mu g/m^3$)

Site ID	X OS Grid Ref (Easting)	Y OS Grid Ref (Northing)	Site Type	Valid Data Capture for Monitoring Period (%) (1)	Valid Data Capture 2022 (%) (2)	2018	2019	2020	2021	2022
LW	350815	395260	Roadside	100	94				12.3	12.6

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

Notes:

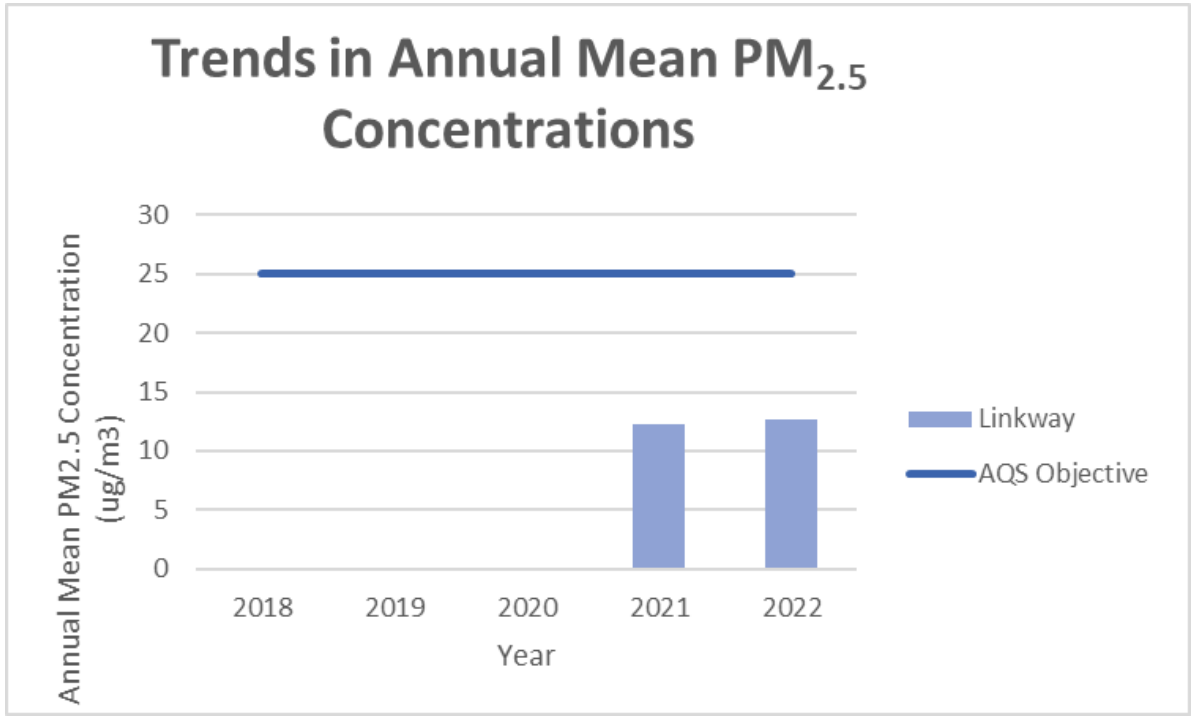
The annual mean concentrations are presented as $\mu g/m^3$.

All means have been “annualised” as per LAQM.TG22 if valid data capture for the full calendar year is less than 75%. See Appendix C for details.

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

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

Figure A.5 – Trends in Annual Mean $PM_{2.5}$ Concentrations



PM_{10} annual data has been used to estimate a $PM_{2.5}$ annual mean by using the national factors provided by Defra. There were no exceedances in 2022, and the estimated annual mean in 2022 is slightly higher than in 2021. No data is available prior to 2021.

Appendix B: Full Monthly Diffusion Tube Results for 2022

Table B.1 – NO_2 2022 Diffusion Tube Results ($\mu g/m^3$)

DT ID	X OS Grid Ref (Easting)	Y OS Grid Ref (Northing)	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Annual Mean: Raw Data	Annual Mean: Annualised and Bias Adjusted <(0.76)>	Annual Mean: Distance Corrected to Nearest Exposure	Comment
1	360109	395661	33.9	28.1	24.7	20.4	21.4	20.3				21.7	19.9	33.2	24.8	18.9		
2	356549	399577				24.8	15.4	11.1				13.9	21.7	29.4	19.4	15.0		
3	349485	394766	23.5	15.6				8.6				13.8	8.1	27.2	16.1	11.4		
4	352451	396735	47.4	29.3	22.8	24.4	14.5	13.0				29.9	21.6	36.2	26.6	20.2		
5	353891	396714	32.6	17.3	30.0	24.2	17.7	15.8				15.8	29.9	35.4	24.3	18.5		
6	359498	394646	32.9	23.8	25.3	20.1	15.5	17.3				21.9			22.4	17.7		
7	350403	394961	50.7			32.6	33.2	33.0				35.2	33.8	44.7	-	-		Triplicate Site with 7, 10 and 31 - Annual data provided for 31 only
10	350403	394961	47.0		44.9	32.2	36.2	36.1				30.2	41.3	54.1	-	-		Triplicate Site with 7, 10 and 31 - Annual data provided for 31 only
31	350403	394961	47.9		40.4	33.5	36.1	35.3				29.7	20.4	47.6	38.3	27.8		Triplicate Site with 7, 10 and 31 - Annual data provided for 31 only
8	358774	395880	32.7	38.3	30.6	24.5	18.1	16.3				20.4	23.8	35.6	26.7	20.3		
9	359915	395639	28.8	18.3	31.4	23.4	15.6	13.2				20.2	25.5	34.1	23.4	17.8		
11	360065	395653			42.3	30.4	33.4	33.4				38.3	45.8	45.2	38.4	28.9		
13	352391	390301	28.8	19.0	24.8	26.4	17.7	17.7				17.6	19.2	29.7	22.3	17.0		
14	359147	395705	30.7	22.1	43.8	32.8	30.1	31.8				32.8	24.3	43.6	-	-		Duplicate Site with 14 and 23 - Annual data provided for 23 only
23	359147	395705	49.7	39.2	44.5	32.6	31.7	28.2				34.5	8.0		33.6	25.5		Duplicate Site with 14 and 23 - Annual data provided for 23 only
15	358220	397077	39.6	34.3	29.5	23.3									31.7	23.2		
16	354377	397475	24.2	21.6	27.0	25.4	17.4	18.3				16.9	21.2	32.7	22.7	17.3		
17	354403	397561	26.1	27.1	38.2	30.5	21.5	18.8				31.5	32.4	42.0	29.8	22.6		
18	350815	395265	44.1	36.0	41.2	28.9	27.3	27.3				34.5	36.7	37.5	-	-		Duplicate Site with 18 and 22 - Annual data provided for 22 only

DT ID	X OS Grid Ref (Easting)	Y OS Grid Ref (Northing)	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Annual Mean: Raw Data	Annual Mean: Annualised and Bias Adjusted <(0.76)>	Annual Mean: Distance Corrected to Nearest Exposure	Comment
22	350815	395265	43.4	36.2	42.1	29.5	27.4	27.4				32.8	43.4	45.5	35.6	27.1		Duplicate Site with 18 and 22 - Annual data provided for 22 only
19	350438	395005	60.6	54.7	65.1	50.6	47.2	39.0				60.0	33.0	76.8	-	-		Duplicate Site with 19 and 24 - Annual data provided for 24 only
24	350438	395005	56.3	46.0	68.2	55.1	47.5	41.9				54.2	54.4	47.6	53.2	40.5		Duplicate Site with 19 and 24 - Annual data provided for 24 only
20	355322	399625	21.4	13.4	19.9	15.2	9.8	7.8				15.9	14.3	28.0	16.2	12.3		
21	350135	396128	35.2	23.2	36.9	27.4	17.8	16.5				27.6	32.9	42.0	28.8	21.9		
25	358975	395804	43.6	29.6	41.2	36.3	25.2	22.4				29.8	33.1	45.0	-	-		Duplicate Site with 25 and 32 - Annual data provided for 32 only
32	358975	395804	46.6	28.9	41.1	37.8	25.5	24.1				29.9	36.9	39.3	34.2	26.0		Duplicate Site with 25 and 32 - Annual data provided for 32 only
26	353129	396240	32.8	25.6	40.2	31.0	25.6	22.6				20.6	32.6	40.0	30.1	22.9		
27	352336	397653	27.9	25.1	41.1	30.3	16.4	16.8				27.7	30.6	35.0	27.9	21.2		
28	350156	394848	39.4	24.8	31.0	26.7	22.9	20.8				25.2	26.8	39.3	28.5	21.7		
29	350456	395135	32.0	21.4	41.6	28.7	17.6	13.9				28.2	28.0	42.5	28.2	21.4		
30	352262	390226	30.0	15.2	27.4	23.7	15.7	15.9				17.4	17.4	31.1	21.5	16.4		
33	350386	389936	37.2	34.1	52.1	21.7	26.4	23.4				37.4	33.4	42.9	34.3	26.1		

☒ **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.TG22.**

☐ **Local bias adjustment factor used.**

☒ **National bias adjustment factor used.**

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

☒ **St Helens Council confirm that all 2022 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 St Helens Council During 2022

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

Additional Air Quality Works Undertaken by St Helens Council During 2022

Works to the new Air Quality Action Plan commenced late 2022. It is the aim to have the draft document issued to Defra to review by the end of 2023.

QA/QC of Diffusion Tube Monitoring

Quality Assurance

SOCOTEC strives for total customer satisfaction in all areas of analytical chemistry and associated project management, development and consultancy.

All of our services are covered by approval to the ISO 9001 management system. Diffusion tube analysis carries UKAS accreditation to the international standard BS EN ISO/IEC 17025 (Testing Laboratory No. 1252) and our Environmental Management System is accredited to ISO14001.

Copies of our ISO 9001, ISO14001 and ISO 17025(UKAS) certificates and schedules and are available if required.

With specific regard to diffusion tubes;

SOCOTEC have been a participant in the AIR PT (and its predecessor the WASP scheme) since its inception and have always maintained the highest achievable laboratory rating (this was previously 'Good' and more recently has been altered to 'Satisfactory').

In order to achieve the top rating of 'Satisfactory' a laboratory should achieve a Z–score of <2. SOCOTEC achieved an average Z-score of 0.27 in 2019.

NO_2 Diffusion Tube Analysis

Accreditations

The manufacture and analysis of the NO_2 diffusion tubes is covered by our UKAS accreditation. Our method also meets the requirements laid out in the UK's 'Diffusion tubes for ambient NO_2 monitoring: Practical guidance.'

As well as the AIR Pt scheme (detailed above) we also take part in the annual EMEP inter-lab comparison and the Marylebone road inter-laboratory comparison scheme, again achieving good results. Andy Parish, the Production Manager for the laboratory, was also a member of the UK's working group for air quality and associated laboratory analysis.

In-house quality procedures dictate that we run one quality control sample for every 10 samples analysed. We monitor this data for statistical anomalies utilising the Shewhart system for statistical process control.

Proposed Delivery Schedule

Tubes are typically sent out 7-14 days before the scheduled changeover date (as defined by the UK Air Quality Monitoring Calendar), although we are happy to dispatch the tubes on dates specified by the customer.

The harmonised NO_2 guidance specifies that tubes should be sent out, exposed, returned and analysed within 4 months of manufacture. Therefore we would advise that tubes are not sent more than 1 month in advance.

In the unlikely event of a damaged tube being received, SOCOTEC will send out replacement tubes via next day delivery.

Turnaround Times

Our quoted analytical turnaround time is 20 working days from receipt, however the laboratory typically achieves a delivery of <10 working days.

Contingency

Currently, the diffusion tube laboratory has 3 full time staff operating in this area in order to provide sufficient resource to manage current workloads with additional laboratory staff available if required.

The laboratory typically analyses in the region of 6000 tubes per month for NO_2 diffusion tube analysis, and has capacity to process several 1000 more tubes per month

Format of Results

We operate a paper-free reporting system, with results being emailed. A signed hardcopy is kept in our records and is available on request.

Methodology for Analysis

Having been involved with diffusion tubes since their original development, the laboratory has 25+ years of experience of analysing NO2 diffusion tubes.

The two main analytical techniques for the determination of nitrite are Ion chromatography and Colorimetric analysis. Ion chromatography tends to have higher running costs, and is

less robust than colorimetric analysis when measuring nitrite, so we have opted to carry out the analysis using colorimetric techniques. This is also the industry standard.

Colorimetric analysis can be carried out manually or automated utilising either a continuous flow, or discrete analyser. SOCOTEC use a continuous flow automated system, for the following reasons:

Colorimetric analysis is dependent on a reaction between the reagents and analyte (NO_2) creating a measurable colour change – in this case violet/purple. However this colour change does not have long term stability so it is important that all analysis is carried out on a like for like basis. In essence this means the volume of reagents added and reaction time have to be carefully controlled, in order to achieve consistent results.

The advantage of the automated system is that the addition of reagents, and the time allowed for colour change are all automated, so all samples and standards are treated identically, which in turn reduces the risk of data inconsistencies.

We choose to use a segmented flow system (SFA) as opposed to a discrete system purely because SFAs are designed for high volume throughput, whereas discrete instruments are more oriented towards low volume multiple analyte analysis.

Diffusion Tube Performance Summary 2022:

Tube Type:	50% TEA : 50% Acetone/ 20% TEA : 80% Water
Uncertainty:	"Diffusion Tubes for Ambient NO_2 Monitoring: Practical Guidance" categorises diffusion tubes as an indicative method, and as such the uncertainty is defined as ± 25%.

During in field intercomparisons, SOCOTEC's diffusion tubes perform at ±10% uncertainty.

Quality Control: A quality control (QC) sample of known concentration is run with the samples. The data generated is then assessed using a Shewhart control chart to determine the process is under statistical control.

Analytical Repeatability: In 2022 ~9000 QC samples were analysed, achieving a relative standard deviation of 0.98%

Confidence Intervals: 2σ ±1.96%

3σ ±2.94%

Limit of Detection: The analytical limit of detection is 0.03µg NO_2.

Over a 4-week exposure this would equate to 0.6µg/m^3, or 0.3ppb

Quality Assurance:

The manufacture and analysis of NO_2 diffusion tubes is covered by our UKAS accreditation.

The laboratory has taken part in the AIR (previously WASP) proficiency scheme since its inception. To achieve the highest ranking of "Satisfactory" a laboratory must achieve a z-score of <2. For 2022, SOCOTEC had an average z-score of 0.50

Bought in ISO Guide 34 and ISO/IEC 17025 certified standards are used to prepare calibration and QC standards.

2% of tubes are checked for blankness during manufacture, to ensure there is no contamination introduced during the manufacturing process.

The method meets the requirements laid out in DEFRA's "Diffusion Tubes for Ambient NO_2 Monitoring: A Practical Guidance."

Pricing

SOCOTEC operates an inclusive and transparent pricing policy with the price quoted covering the manufacture, supply and analysis of the NO_2 diffusion tubes as well as the issuing of the report. This price also includes our postage costs, the calculation of exposure times and the re-issuing of reports (should any become lost). Please note that the price does not include the postage costs when returning the tubes for analysis to the laboratory.

For this specific project, please see the quotation attached.

Contact Details

The primary contact for this project would be: David Young – Senior Analyst

Address: Unit 12, Moorbrook
Southmead Industrial Estate
Didcot
Oxfordshire
OX11 7HP

Telephone: +44 (0) 1235 750730

Email david.young@socotec.com

Group email: DiffusionTubes@socotec.com

Diffusion Tube Annualisation

Annualisation was carried out on diffusion tubes 2, 3, 6, 7, 10, 11, 15 and 31 using the data processing tool provided by Defra.

Table C.1 – Annualisation Summary (concentrations presented in µg/m^3)

Site ID	Annualisation Factor Linkway	Annualisation Factor Borough Road	Annualisation Factor High Street	Annualisation Factor Southworth Road	Average Annualisation Factor	Raw Data Annual Mean	Annualised Annual Mean
2	0.9906	1.0351		1.0211	1.0156	19.4	19.7
3	0.9025	0.9111		0.9726	0.9288	16.1	15.0
6	1.0071	1.0990		1.0060	1.0374	22.4	23.2
7	0.9169	0.9745		0.9786	0.9567	-	-
10	0.9169	0.9745		0.9786	0.9567	-	-
31	0.9169	0.9745		0.9786	0.9567	38.3	36.6
11	0.9471	1.0163		1.0055	0.9897	38.4	38.0
15	0.8961	0.9974		0.9916	0.9617	31.7	30.5

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.TG22 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.

St Helens Council have applied a national bias adjustment factor of 0.76 to the 2022monitoring data. A summary of bias adjustment factors used by St Helens Council over the past five years is presented in Table C.2.

There are one set co-located triplicates at Southworth Road and two sets of co-located duplicate diffusion tubes at the Linkway monitor and the High Street monitor within St

Helens. Even though the LAQM TG16 guidance states “To validate NO_2 diffusion tube data (bias adjustment), additional tubes should be exposed in triplicate at a suitable nearby automatic monitoring station, using the same monthly exposure periods as the other sites.” the duplicate tubes results were inputted into the Defra diffusion tube data processing tool.

There was a poor overall precision with the diffusion tubes at Linkway and the automatic monitoring data at High Street was below 85%. Southworth Road was the only area appropriate for the calculation of the bias adjustment factor. A national factor was used as only one of the three sites were appropriate, and this would not be representative of the whole Borough.

Table C.2 – Bias Adjustment Factor

Monitoring Year	Local or National	If National, Version of National Spreadsheet	Adjustment Factor
2022	National	03/23	0.76
2021	Local	-	0.93
2020	Local	-	0.82
2019	National	06/20	0.75
2018	National	06/19	0.76

Table C.3 – Local Bias Adjustment Calculation

A national bias adjustment factor of 0.76 has been used to bias adjust the 2022 diffusion tube results.

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 St Helens Council required distance correction during 2022.

QA/QC of Automatic Monitoring

Data Management – undertaken by CMCU - would be undertaken against the standards set out in TG.22.

LSO for the site is Emma Woodrow.

API and BAM at the site – detail the frequency of site visits for both sets of equipment. Audits are undertaken twice a year by QAQC (Ricardo) and servicing twice a year minimum by ET.

Ratification of data in undertaken by Ricardo and the data presented in the ASR is likely to be ratified as it is 2022 data available on UK Air.

Data should be accessible on UK Air

This section can also include what is the ratification and validation process of data –

> Validation - should be automatic screening to identify anomalous results which can be manually investigated – API gaseous data would be scaled through calibrations – regular calibrations undertaken as mentioned above.
>
> Ratification – finalising data for reporting – all data assessed so best scaling is applied and anomalous results edited – tends to be at 3 month intervals – particulate data requires scaling – the method used https://uk-air.defra.gov.uk/data/data-availability.

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

Section 7.165 in TG.22 will provide detail of the PM adjustment factors applied in the ratification of data process:

> *"Beta Attenuation Monitors (BAMs) pass air through a filter material and monitor the increase in mass by the attenuation of beta radiation. BAM instruments are made by multiple manufacturers."*

Automatic Monitoring Annualisation

Box 7-9 – Example: Annualising Continuous Monitoring Data in TG.22 provides information on how annualisation of automatic monitoring should be undertaken if there is less than 75% data capture but more than 25%.

NO_2 Fall-off with Distance from the Road

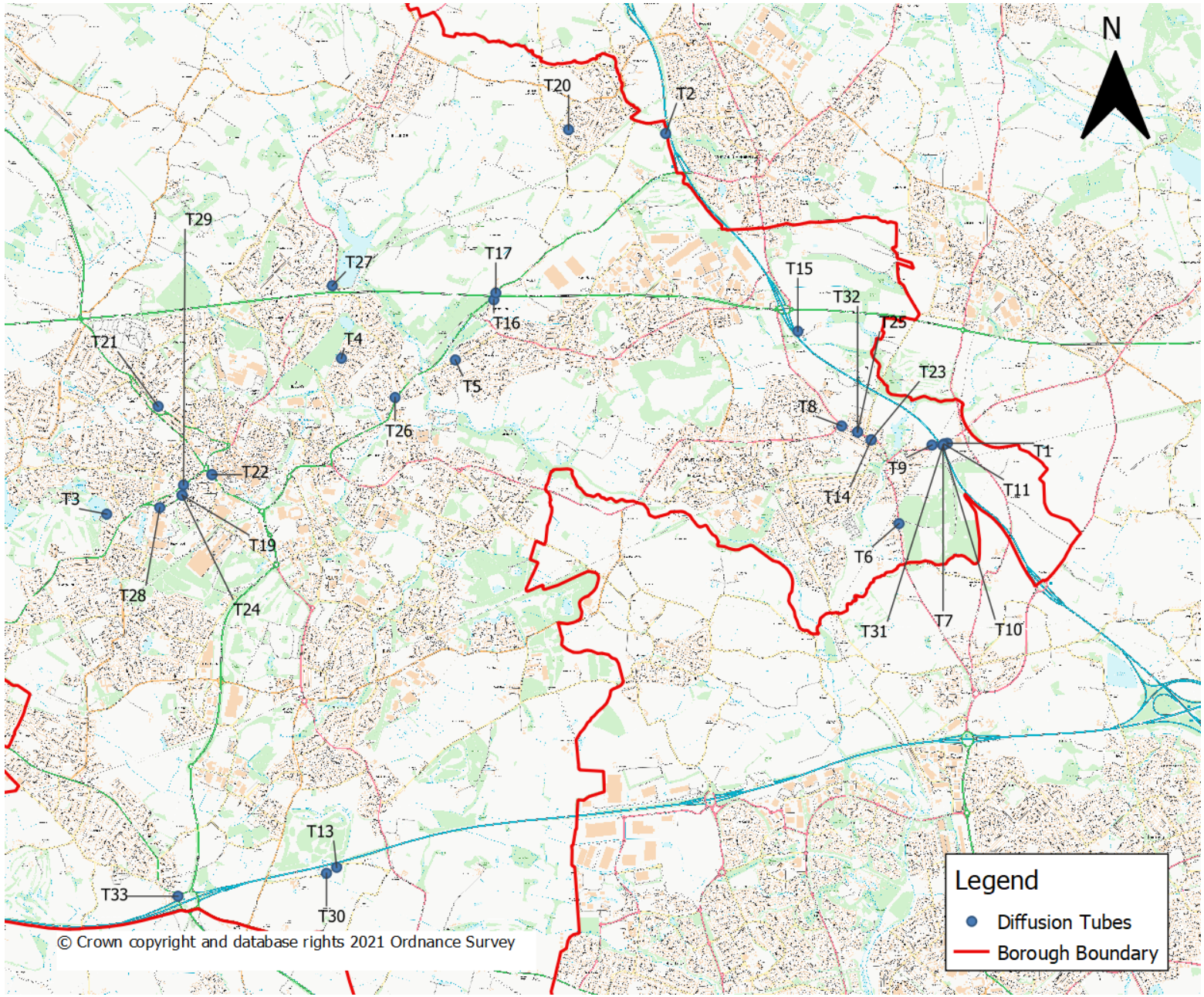
Wherever possible, monitoring locations are representative of exposure. However, where this is not possible, the NO_2 concentration at the nearest location relevant for exposure has been estimated using the NO_2 fall-off with distance calculator available on the LAQM Support website. Where appropriate,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

For automatic stations, if NO_2 concentrations are within 10% of the AQO for annual mean NO_2 fall of with distance should be undertaken, this will consider the distance the station is from relevant exposure, background concentrations to determine if there is a potential exceedance (or within 10% of the AQO) at relevant exposure.

https://laqm.defra.gov.uk/air-quality/air-quality-assessment/no2-falloff/

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

Figure D.1 – Map of Non-Automatic Monitoring Site


N
T20
T2
T29
T27
T17
T15
T32
T25
T16
T21
T4
T5
T23
T26
T8
T1
T22
T9
T11
T3
T14
T19
T6
T28
T24
T31
T7
T10
T13
T33
T30
Legend
Diffusion Tubes
Borough Boundary
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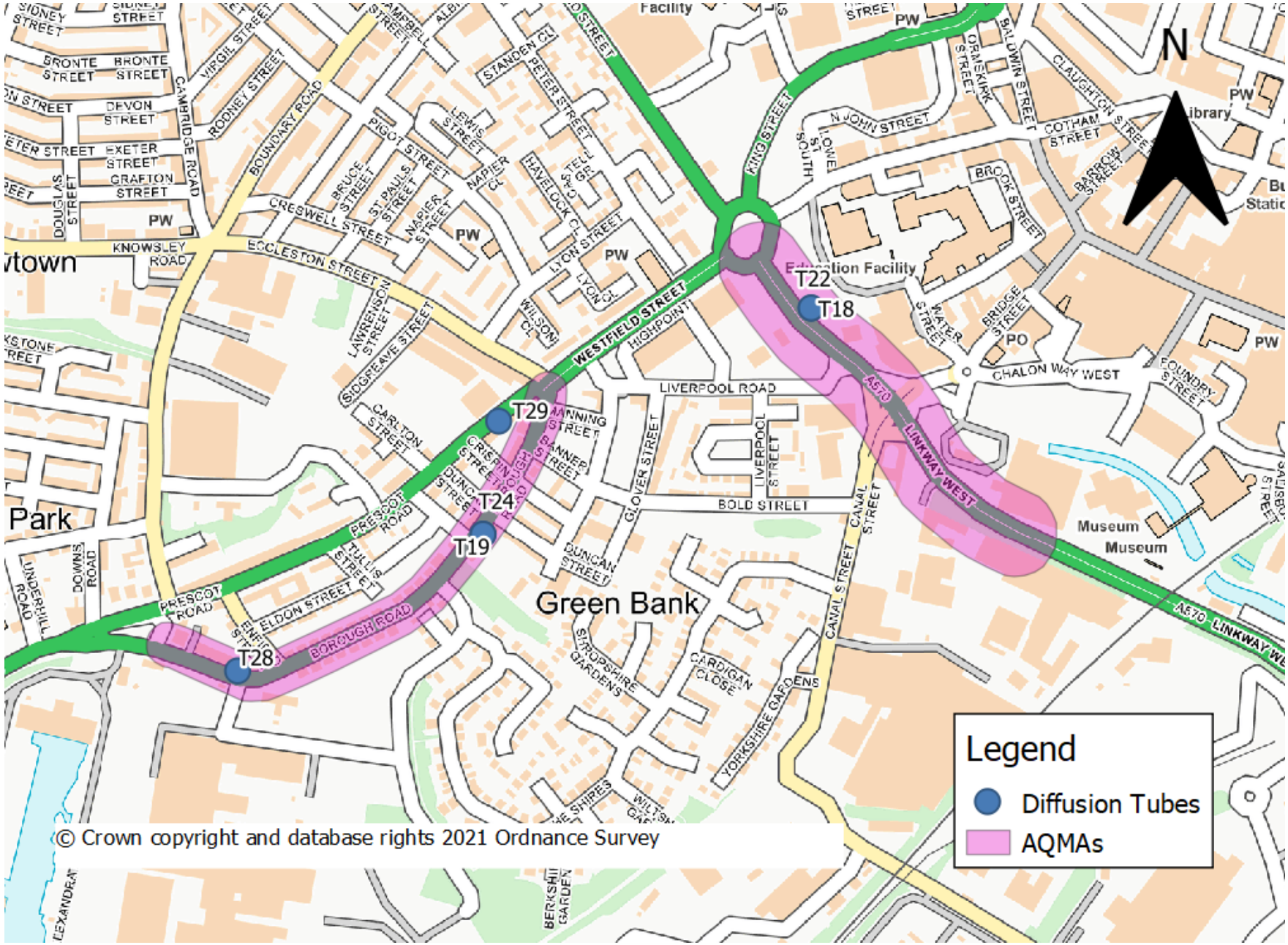
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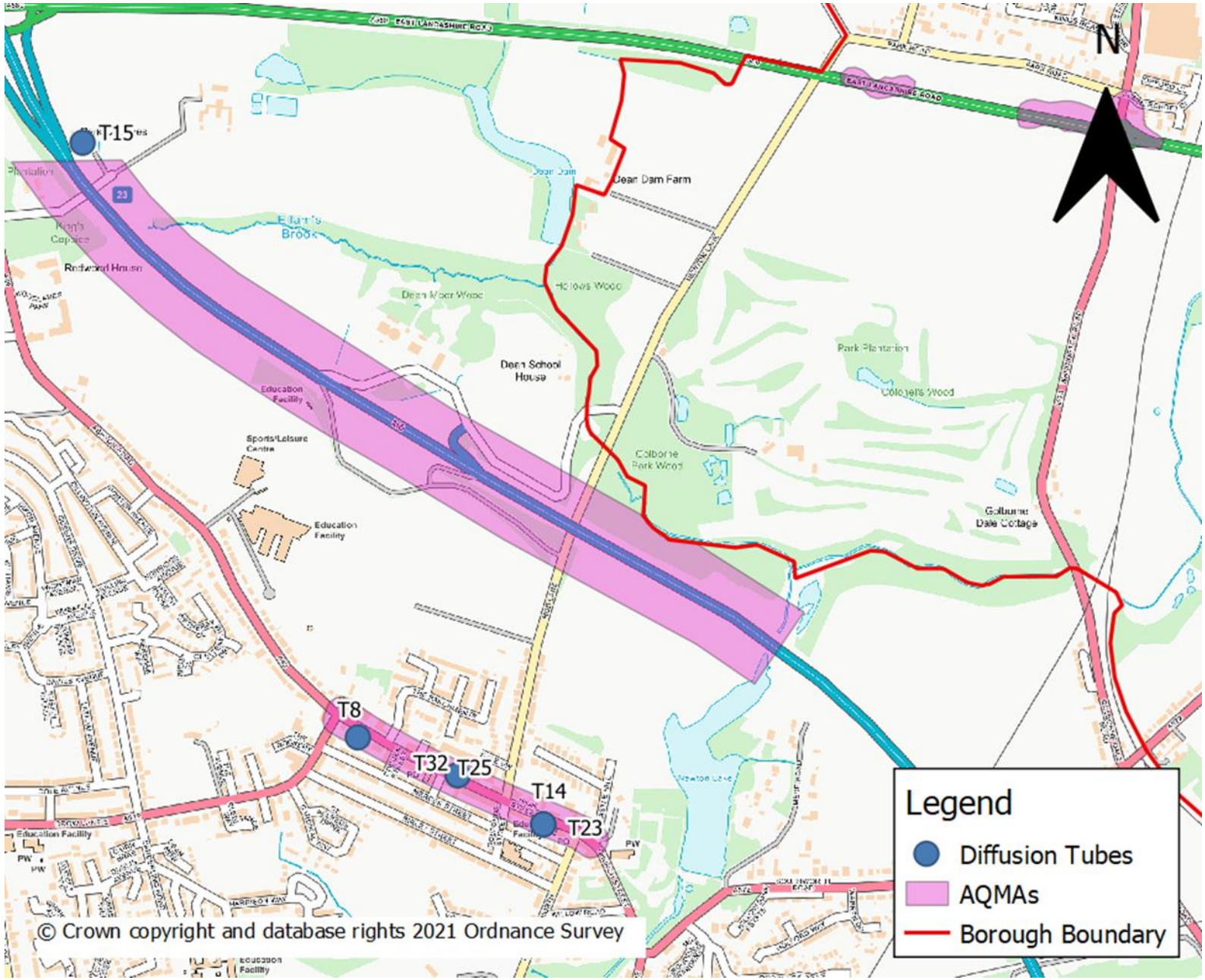
T22
T18
T29
T24
T19
T28
Green Bank
Park
Legend
Diffusion Tubes
AQMAs
© Crown copyright and database rights 2021 Ordnance Survey


N
T15
T8
T32
T25
T14
T23
Dean Dam Farm
Dean School House
Education Facility
Sports/Leisure Centre
Education Facility
Education Facility
Education Facility
Legend
Diffusion Tubes
AQMAs
Borough Boundary
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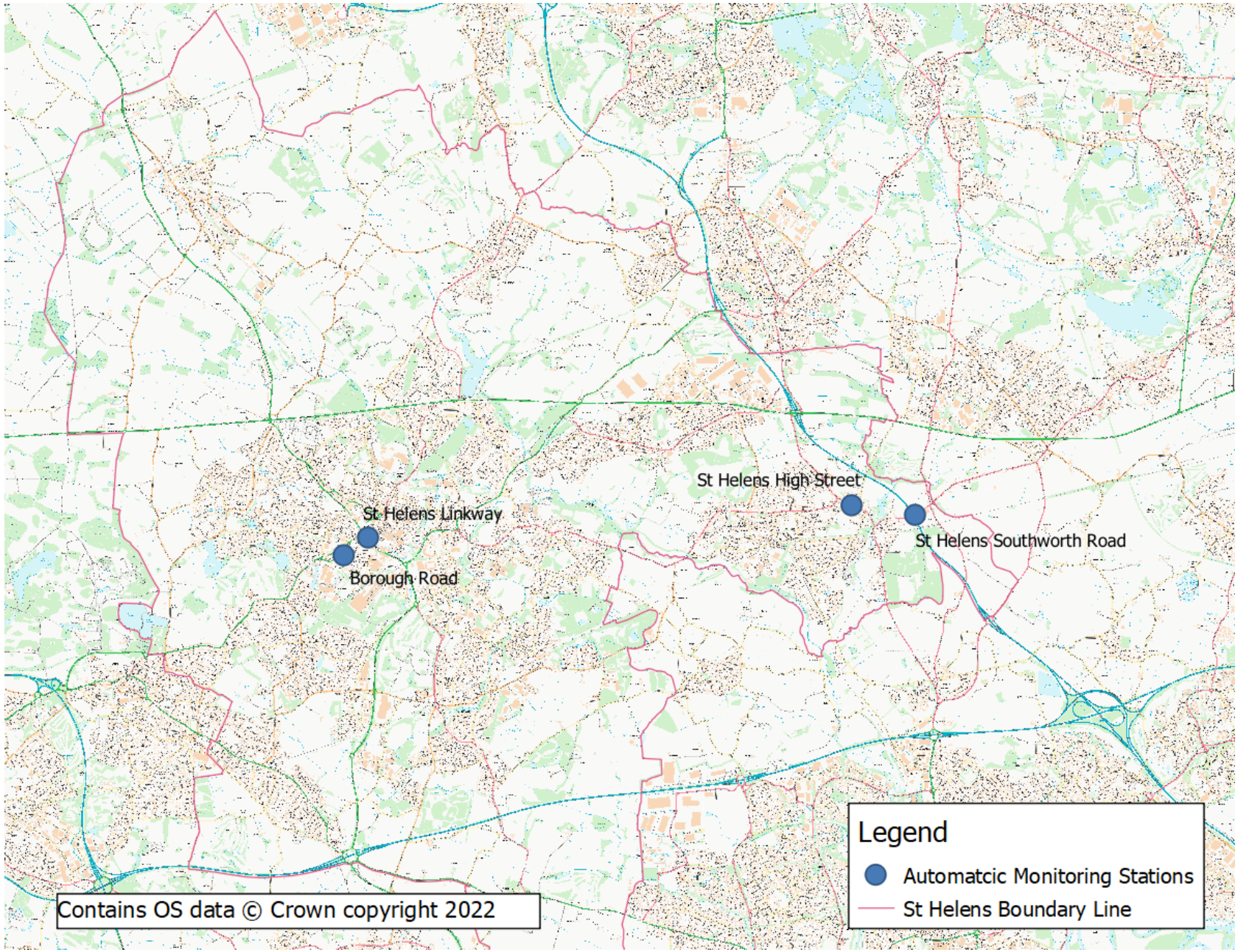
St Helens High Street
St Helens Linkway
St Helens Southworth Road
Borough Road
Legend
Automatcic Monitoring Stations
St Helens Boundary Line
Contains OS data © Crown copyright 2022

Appendix E: Summary of Air Quality Objectives in England

Table E.1 – 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: 2022 Major Planning Applications

Officer	Application Number	Site Address	Proposal	Status	Decision Date	Extended Date	26 Week Date
Officer	Application Number	Site Address	Proposal	Status	Decision Date	Extended Date	26 Week Date
Mr Daley Parsonage	P/2022/0313/FUL	Land South Of Former Pilkington Group Head Office Alexandra Park Prescot Road St Helens WA10 3TT	Proposed erection of 64 residential units (36 dwellinghouses and 28 apartments) with associated development and landscaping.	Pending Consideration	03.08.2022		13/09/2022
Mr Daley Parsonage	P/2022/0343/OUP	262 Watery Lane (Site Of Demolished Beehive Public House And Bowling Green Opposite) St Helens WA9 3HF	Outline application with all matters reserved for proposed development of 10 dwellings with associated access, parking and landscaping	Pending Consideration	18.08.2022		28/09/2022
Mr Daley Parsonage	P/2022/0419/FUL	Alfred Knight Ltd Prescot Road St Helens WA10 3BQ	Full planning application for the demolition of existing buildings and the erection of 54 affordable dwellings with associated parking, landscaping, amenity space and infrastructure.	Withdrawn	19.09.2022		30/10/2022
Mr Daley Parsonage	P/2022/0425/S73	Land Adjacent To Former Little Lea Green Farm Elton Head Road St Helens	Variation of condition 1 (Approved Plans) and 3 (Noise Insulation Scheme) and removal of condition 2 (Obscure Glazing) on approval P/2019/0216/RES to amend the approved layout for a residential development of 180 dwellinghouses.	Granted	23.09.2022		03/11/2022

Mr Daley Parsonage	P/2022/0483/FUL	Land North Of Penny Lane And South Of Movianto Building Penny Lane Haydock St Helens	Erection of a 12,541 sqm (134,990 sqft) Class B8 (storage and distribution) unit with associated parking, servicing space and landscaping(as an alternative to that approved under permission ref: P/2018/0121/S73)	Granted	03.10.2022		13/11/2022
Mr Daley Parsonage	P/2022/0531/FUL	Land At Somerset Street St Helens	Proposed erection of 40 semi-detached dwellinghouses with associated development and landscaping.	Granted	27.10.2022		07/12/2022
Mr Daley Parsonage	P/2022/0575/FUL	Land West Of Mill Lane Newton Le Willows St Helens	Residential development for 99 dwellings including access, associated works and landscaping	Refused	14.11.2022		25/12/2022
Mr Daley Parsonage	P/2022/0646/S73	Land Between Sutton Road Lancots Lane And Dismantled Railway Line Lancots Lane St Helens	Variation of condition 18 (affordable housing) on application P/2020/0113/FUL.	Granted	02.12.2022		12/01/2023
Mr Daley Parsonage	P/2022/0702/FUL	Ravenhead Social Club Alexandra Drive St Helens WA10 3UJ	Proposed demolition of Ravenhead Social Club and the erection of a proposed 80 bed care home and associated parking and landscape gardens.	Withdrawn	06.01.2023		16/02/2023
Mr Daley Parsonage	P/2022/0748/RES	Land To The West Of Omega South & South Of The M62 Omega West	Reserved Matters Application seeking approval for the diversion of the Whittle Brook	Granted	27.01.2023		09/03/2023

		Zone 8 St Helens	watercourse alongside associated landscaping, drainage works and other associated details including information to satisfy conditions 48, 51-52, 72-74, 76-78 and 80-81 following s73 application P/2022/0204/S73.				
Mr Daley Parsonage	P/2022/0785/FUL	Land At Haydock Industrial Estate Haydock Lane Haydock WA11 9UY	Full planning application for the construction of four employment units for flexible use across classes E (g. iii), B2 and B8 with ancillary offices, security gatehouses, car parking, service yards, infrastructure, landscaping and associated works.	Pending Consideration	02.02.2023		15/03/2023
Mr Daley Parsonage	P/2023/0188/S73	Unit 4 Omega West Zone 8 St Helens	Variation of condition 59 (Environmental Statements) on application P/2022/0204/S73 to increase the maximum height of Unit 4 from 19m to 22m and amend the landscaping parameters to allow the reorientation of the main building and updated Environmental Statement.	Pending Consideration	19.06.2023		30/07/2023
Mr Daley Parsonage	P/2023/0189/RES	Land To The West Of Omega South & South Of The M62 Bold St Helens	Reserved Matters Application seeking approval for Appearance, Landscaping, Layout and Scale for the erection of Unit 4 comprising employment floorspace, internal access roads, footpaths and cycle routes,	Pending Consideration	20.06.2023		31/07/2023

			drainage works, associated car and HGV parking, and other associated infrastructure along with information to satisfy conditions 48, 49, 50, 51, 52, 55, 59, 65, 72, 73, 74, 76, 78, 80, 81, 90, 91, 95, and 97				
Mr Daley Parsonage	P/2023/0218/FUL	Land At Cromdale Grove Playing Field Cromdale Grove St Helens	Application for full planning permission for the construction of formal sports pitches, changing facilities, ground maintenance store, car parking, landscaping, drainage, pedestrian footpath enhancements and associated works, with access from Cromdale Grove.	Pending Consideration	30.06.2023		10/08/2023

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

References

- Local Air Quality Management Technical Guidance LAQM.TG22. August 2022. Published by Defra in partnership with the Scottish Government, Welsh Assembly Government and Department of the Environment Northern Ireland.
- Local Air Quality Management Policy Guidance LAQM.PG22. August 2022. Published by Defra in partnership with the Scottish Government, Welsh Assembly Government and Department of the Environment Northern Ireland.
- https://www.sthelens.gov.uk/business/environmental-health/environmental-protection/air-quality/
- www.sthelens.gov.uk
- Merseytravel | Liverpool City Region Travel Information
- Policy Guidance LAQM.TG16
- Local Air Quality Management (LAQM) Support - Defra, UK
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