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: September 2023

Information	Wirral Council Details
Local Authority Officer	Jennifer McKeown Victoria Chadderton
Department	Environmental Health
Address	Wirral Council, Environmental Health Division, PO Box 290, Brighton Street, Wallasey, CH27 9FQ
Telephone	0151 691 8173
E-mail	Jennifermckeown1@wirral.gov.uk Victoriachadderton@wirral.gov.uk
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Version 1	June 2023	Signed off by Director of Public Health June 2023. Approved by DEFRA in July 2023.
Version 2	September 2023	Amended to include data omission.

Executive Summary: Air Quality in Our Area

Air Quality in Wirral

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].

Wirral Council undertakes monitoring and reporting of air quality across the borough. This monitoring is in the form of real time monitoring from the two Automatic Urban Rural Network (AURN) stations in the borough, operated by the Department of Environment, Farming and Rural Affairs' (DEFRA), and fifty-six passive monitoring locations across the borough. As part of the reporting process, the Authority must assess what actions they are taking now and what planned action, if any should be taken in the future.

Wirral Council has not declared any Air Quality Management Areas (AQMA) in the borough, as monitoring results have not indicated any breaches of the UK Air Quality Objective levels for air pollution.

[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

Nitrogen Dioxide

Within Wirral, Nitrogen Dioxide is monitored in real time at the two DEFRA AURN stations. In addition, Nitrogen Dioxide is also monitored using passive diffusion tubes. During 2022, monitoring was undertaken at fifty-six sites across Wirral. There was no identified exceedances of the annual mean Nitrogen Dioxide national objective at these fifty-six passive diffusion monitoring sites. There were also no exceedances of the annual mean National Objective for Nitrogen Dioxide levels, or the hourly mean National Objective for Nitrogen Dioxide levels monitored at the two AURN real time air pollution monitoring stations.

Further details on the results for 2022 are provided in Appendix A. The monitoring during 2022 has not identified locations where a detailed assessment or the declaration of an air quality management area will be required.

Wirral's Local Air Quality Management programme has tailored monitoring locations to include those areas identified as traffic 'hot spots.' Areas that may be affected by housing and / or commercial developments have also been considered. This focus is determined using DEFRA's Nitrogen Dioxide modelling data, local intelligence, including an air quality modelling report, commissioned as part of the production of the Local Plan, historical data, information obtained from the Authority's sustainable transport team and the Merseyside Atmospheric Emissions Inventory.

A monitoring location review was undertaken at the end of 2021, to determine whether monitoring was still being undertaken in the most relevant locations, using the sources of information identified above, as well as the available results from previous years of monitoring at each site.

It was decided that one new monitoring station would be introduced in January 2022 and the two sites that were removed would be relocated. The three new monitoring sites that were introduced are W22/22, W47/22 and W65. The two monitoring sites that were removed are W22/19 and W47.

In summary, in 2022, fifty-three existing monitoring sites were retained, two existing monitoring sites were removed and relocated and one new monitoring sites was added. Therefore the total number of passive diffusion tube monitoring sites located in Wirral for 2022 is fifty-six.

Particulate Matter

The AURN located in Tranmere monitors for background levels of Particulate Matter ($PM_{2.5}$) and Ozone. The AURN data for $PM_{2.5}$ has demonstrated that in the 5 years between 2018 and 2022 Wirral has seen no overall reduction in $PM_{2.5}$ levels. The $PM_{2.5}$ concentration for 2022 was an annual mean of 8µg/m^3. This is above the current World Health Organisation Air Quality Guideline level of 5µg/m^3 but below the new annual Mean Concentration Target 10µg/m^3, set out in The Environmental Targets (Fine Particulate Matter) (England) Regulations 2023, which is to be met across England by 2040.

New requirements set out in the Environmental Targets (Fine Particulate Matter) (England) Regulations 2023 now necessitate at least a 35% reduction in population exposure by the end of 31st December 2040, with a baseline of 2018 levels. In addition, the new National Air Quality Strategy, which has recently been sent out for consultation, includes an interim target of 22% reduction in exposure by 2028, again compared to a baseline figure from 2018.

Key Challenges to Addressing Air Quality

New Developments

Wirral Council is currently examining in public, the Local Plan Submission Draft. The Local Plan sets the framework for future land use planning decisions over the next 15 years between 2020 and 2037. Within this plan, it will allocate sufficient land to meet the need for housing for the whole of Wirral.

An Air Quality Modelling Study was commissioned to help in the preparation of the final stages for the new Local Plan before submission to the Secretary of State for public examination.

Regeneration Projects

- Hind Street Urban Village - This project will see the development of a substantial brownfield site of approximately 12 hectares, with the intention to bring 1,400 new homes to Birkenhead, supporting Wirral Council's 2021-2037 Local Plan.

  Wirral Council, Ion and other stakeholders will deliver a low-carbon urban village that will deliver a sustainable residential-led neighbourhood, close to both the town centre and the two railway stations.

  The phased development, to span over a decade, will create a new vibrant neighbourhood that will directly connect to and support the resurgence of the town centre.

- **Birkenhead**

  There is a significant regeneration project being undertaken around the docks area in Birkenhead, known as Wirral Waters and the proposed £150 million regeneration of Birkenhead town centre.

- **Liscard**

  In late 2019, Wirral Council was successful in bidding for a £500,000 Liverpool City Region Town Centre Fund for Liscard town centre. The Action Plan of investment aims to improve the sustainability and vitality of the town centre and help to drive forward the regeneration.

- **New Ferry**

  There are also regeneration plans for New Ferry town centre, following a gas explosion in March 2017, which caused significant damage to the town centre. The master plan incorporates a combination of residential and retail developments over three separate areas of land in the area. In total, across the three sites, the outline planning permission is for the building of up to 79 new residential units, with a mixture of two and three-bedroom houses and one and two-bedroom apartments. There is also outline planning consent for more than 1,000 square metres of retail floorspace across the sites.

When applicable Policy TRT3 'Transport and the Environment' and Policy PO1 'Potentially Polluting Development' in the Wirral Unitary Development Plan (saved 2007) and Waste

Local Plan (2013) Policy WM12 ‘Waste Management Development’ makes provision for assessing the impacts from new development on air quality in the determination of planning applications.

By being involved in local planning policy formulation, proposed developments and in the decision-making process on formal planning applications, Environmental Health, along with other colleagues from across the Council, can help scrutinise plans to enable them to provide advice on how future developments should help to address the Local Air Quality Management Objectives.

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[5] 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 reduce $PM_{2.5}$ in their areas. The Road to Zero[6] 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.

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

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

Summary of Core Actions

Below is a brief summary of the core actions that have been or are being undertaken, to improve air quality in Wirral.

Wirral Council Air Quality Group

The Wirral Air Quality Group has been re-established and has representatives from several departments including Environmental Health, Public Health, Transport, Licensing and Forward Planning. The group aims to meet four times per year and co-ordinate the Council's obligation to manage air quality. The group is currently overseeing the development of Wirral's Air Quality Strategy.

Wirral's Air Quality Strategy

Wirral Council is currently progressing with the development of an Air Quality Strategy. This strategy will cover the whole borough and will include both indoor and outdoor air quality. It will showcase the great work that is already been undertaken across the Council and by wider partners that has had positive impacts on air quality and identify areas for future action. An action plan will be developed to support the implementation of this strategy and progress with its aims and objectives.

As part of the development of this strategy a successful and well attended workshop event was held, involving representatives from a broad range of external stakeholders, including private organisations, the community and public sector organisations, enabling them to come together to engage and help shape and inform this strategy. A public consultation will also be undertaken.

Project to Reduce Particulate Emissions from Domestic Burning.

The National Clean Air Strategy 2019, states that wood-burning stove emissions are now the biggest source of PM pollution in the UK, making up 38% of UK air pollution.

Wirral Council has obtained funding from DEFRA to support a project to improve air quality by reducing particulate emissions from domestic burning at source, targeted mainly at wood

burning stoves but also considering other domestic burning. This project will enable Wirral to work towards meeting the targets for $PM_{2.5}$ set out in The Environmental Targets (Fine Particulate Matter) (England) Regulations 2023.

The project aims to reduce emissions of particulate matter at source, through a variety of initiatives and interventions aimed at suppliers and installers of solid fuel appliances, maintenance professionals, solid fuel, wood and biomass suppliers, households and allotment holders.

The project has two main objectives, the first is to reduce particulate matter from domestic burning at source, through an information and education campaign alongside a review of legislation and enforcement options. The second is to provide residents, particularly those more vulnerable to the health effects of air pollution, with the knowledge to protect themselves from air pollution through delivery of an information and awareness campaign delivered in community and public health settings. Initial work on the project will commence in August 2023.

School Air Quality Project.

The aim of the project is to support schools in Wirral to implement low-cost measures aimed at increasing the number of children who are actively travelling to and from school rather than using motor vehicles. This will help to reduce vehicle activity around the school at drop off and pick up times and reduce the number of drivers who idle their engines whilst parked outside school. Reductions in vehicle activity around the participating schools will have a positive impact on the air quality around the school. The project is being led by Grove Street Primary School, who sent out a challenge to other schools to join them. Sixteen other schools accepted the challenge to join in. A selection of children from these participating schools attended a conference on Clean Air Day 2023 to outline their project and share ideas for future projects.

Wirral Joint Strategic Needs Assessment (JSNA) on Air Quality

The Wirral Intelligence Service Joint Strategic Needs Assessment (JSNA) on outdoor air quality provides a summary of key pollutants, the impact on health and priority actions in Wirral. The JSNA on Air Quality was updated in 2022.

Wirral Climate Change Strategy

Climate change has become an even more urgent priority since the latest evidence was presented to the United Nations (UN) by the Intergovernmental Panel on Climate Change. Wirral Council declared an environment and climate emergency in July 2019. A new climate change strategy, Cool 2, was agreed by the Cool Wirral Partnership in December 2019 and subsequently endorsed by Council. The strategy seeks to keep within a local carbon budget, compliant with the UN's Paris Agreement and anticipates reaching net-zero carbon emissions in Wirral by 2041. The strategy should provide positive benefits for local air quality, as local objectives are met. The strategy includes an objective for a "complete transition to fossil fuel free local travel by around 2030". The Council also has an Environment and Climate Emergency Action Plan (CEAP), which set the ambitious but achievable target of the Council and its entity being 'net carbon neutral' by 2030. The CEAP was developed in 2020 and is designed to drive fundamental change to the way the Council operates, makes decisions, and provides services. The plan contains a significant number of actions to transform the Council, and we have already delivered an electric vehicle (EV) charging pilot scheme with fifty-three on-street residential charging points, following on from the pilot these have been adopted and a charging tariff has been agreed and implemented in December 2022. Wirral have also completed a green fleet review and in 2022. Sixteen park staff members received training to use e-cargo bikes and electric trailers to assist with maintenance tasks. The e-cargo bikes were deployed in January 2023 and have been utilised within Birkenhead Park, Leasowe castle, Central Park in Wallasey and Flaybrick cemetery. In the three months from January 2023, the bikes have covered a total of 257 miles (a diesel van would generate 60kg CO_2 over this distance) and it is hoped that the uptake will increase over the coming year. Relevant priority actions for 2023/24 are the production of an EV strategy for the borough and to establish a green fleet strategy.

Conclusions and Priorities

Wirral has no AQMA's and no exceedances of the national objective for Nitrogen Dioxide were identified during 2022, at any monitoring location. Nitrogen Dioxide levels have shown changes, at those sites retained between 2021 and 2022. At the fourty-four sites where comparative data is available for 2021 and 2022, twenty-nine sites showed a reduction in monitored levels on Nitrogen Dioxide and fifteen showed an increase in nitrogen Dioxide levels. Comparative data, between 2012 and 2022, is not available at twelve monitoring sites.

The data obtained from the two AURN's located in Wirral shows that there has been a reduction in annual mean concentrations of Nitrogen Dioxide at Tranmere AURN in the last five years (2018 to 2022) and a reduction in annual mean concentrations of Nitrogen Dioxide at Birkenhead in the last five years (2018 to 2022).

The AURN data for $PM_{2.5}$ has demonstrated that background levels have generally stayed the same between 2018 to 2022, with background annual mean levels remaining the same at 8µg/m^3, for 2021 and 2022, with a rolling average of 7µg/m^3 for the last three years.

The results of monitoring have not identified any exceedances of the National Objectives, which would require the declaration of an Air Quality Management Area. It is still recognised that there is a need to closely monitor air quality in the borough and utilise all opportunities to improve air quality.

The Air Quality priorities for the Council are as follows:

- To continue to robustly monitor air quality in the borough, to ensure the concentrations are within the EU objectives.
- To lead on the development of an Air Quality Strategy for the borough.
- To produce a Wirral Air Quality action plan, detailing the work that is planned and the work that is underway to support the implementation of the strategy.
- To commence the DEFRA funded project to Reduce Particulate Emissions from Domestic Burning.
- To fully utilise the planning system, in accordance with guidance, to effectively promote air quality.
- To regularly review its air pollution monitoring locations, to reflect the most up to date information e.g. traffic levels and emission sources, to provide a broad understanding of air quality across the borough and meaningful air quality data that can be used as part of the planning application process (e.g. baseline data for air quality impact assessments submitted as part of planning applications).
- To continue to monitor the impact of air quality on the health of Wirral residents, by regularly reviewing the Joint Strategic Needs Assessment Air Quality chapter.

- To continue to work with our partners to encourage active travel and to make public transport cleaner and easier to use.
- To build up public participation and public engagement through Wirral's Clean Air campaign, which aims to raise awareness of air pollution and inform Wirral's residents that 'You're the key' to helping to improve local air quality. It highlights small changes in behaviour that can improve air quality and informs drivers in Wirral that they may be fined if they do not switch off their engine when parked. The focus for this campaign during 2022/23 has been on schools, linked to the air quality schools project.
- To capitalise on new and changed behaviours e.g. increased active travel, which may positively influence better air quality.

The main challenge to achieving the above-mentioned air quality priorities will be making the best use of the available resources.

Local Engagement and How to get Involved.

The Council's website provides information in relation to air quality and signposts local residents to information on air quality, including the main governing legislation. It also provides the latest monitoring results for the borough, in addition to links to further information and data. The Wirral Intelligence Service Joint Strategic Needs Assessment (JSNA) on outdoor air quality provides a summary of key pollutants, the impact on health and priority actions in Wirral. The JSNA was updated in 2022.

Residents can access advice on Wirral Council's website about how they can help improve air quality by implementing small changes to their daily life. This could include car sharing (e.g. when driving to and from work), walking rather than driving, particularly for short journeys and reducing vehicle emissions by not letting vehicle engines idle (i.e. switching off a vehicle engine when it is stationary / parked). Residents can contact the Council directly for further information on air quality.

Residents can also access the Lets Clear the Air LCR air quality website, which is an educational website on air quality and is aimed at children. And they can also join local community groups such as, but not limited to, Wirral Environmental Network.

Clean Air Day 2022

Clean Air Day 2022 was held on Thursday 16th June and involved a banner competition for competing schools to win £250 to spend on an environmental/sustainability project, equipment, or trip. In 2022 it was won by Priory Parish School in Birkenhead.

Clean Air Day 2023

Clean Air Day 2023 focussed on a Clean Air Conference, which was attended by children representing the schools who joined the challenge set by Grove Street primary school, to create their own clean air campaigns to promote active travel and reduce traffic around their school. The children shared information on the activities they had undertaken with the other schools. The children also created their own pledges for improving air quality and recorded short video clips containing messages they wanted to share with the attendees of the air quality workshop, which involved representatives from a broad range of external stakeholders, including private organisations, the community and public sector organisations, coming together to help shape and inform this air quality strategy for the borough.

Local Responsibilities and Commitment

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

- Emma Hopkins, Principal Planning Officer
- Colin Irlam, Strategic Transport Project Manager
- Lucy Northey, Climate Emergency Manager
- Margaret O'Donnell, Licensing Manager
- Steve Atkins, Senior Network Operations Manager
- Carl Amos, Senior Network Manager
- Ann Rice, Principal Officer
- Rhian Hughes, Interim Road Safety Strategy Manager
- Amanda Keenan, Programme Manager, Highways and Infrastructure.
- Helen Stott, Head of Health Protection.

This ASR has been approved by:

- Elspeth Anwar, Public Health Consultant and
- Chris Smith, Environmental Health Senior Manager

This ASR has been signed off by Dave Bradburn, Director of Public Health.

If you have any comments on this ASR please send them to Jennifer McKeown at:

Wirral Council, Environmental Health Division, PO Box 290, Brighton Street, Wallasey, CH27 9FQ

0151 691 8173

Jennifermckeown1@wirral.gov.uk

Environmentalhealth@wirral.gov.uk

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Tables

1 Local Air Quality Management

This report provides an overview of air quality in Wirral 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 Wirral 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

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.

Wirral Council currently does not have any declared AQMAs.

A local Air Quality Strategy is under development to prevent and reduce polluting activities and improve air quality within the borough.

Progress and Impact of Measures to address Air Quality in Wirral Council

Defra's appraisal of last year's ASR concluded: The report is well structured, detailed, and provides the information specified in the Guidance. The following comments are designed to help inform future reports.

1. Trends are clearly presented and discussed and a robust comparison with air quality objectives is provided. This includes percentage comparison at each monitoring location between 2021-2020 and 2021 – 2017.

   Action: None required

2. The council have reviewed their monitoring network following 2020 and the AQA that was undertaken for the local plan and installed an additional 21 monitoring location across the council area. It should be noted that co-located monitoring should ideally be undertaken to derive local bias adjustment factors which is expected in the 2023 ASR.

   Action: A co-location study was implemented in 2023. This will be used for the 2024 ASR.

3. Wirral MBC have provided a high level of detail on the measures to improve air quality through their joint Liverpool City Region Air Quality Action Plan and Climate Change strategy. This is welcomed and it would be beneficial to continue to see this level of detail in future ASR's. It should be noted that some areas of Table 2.1 such as completion dates, funding status, cost of measures and measures status are not complete for a majority of the measures. Although this is not necessary as no AQAP is required and there is a high level of detail provided, it would be beneficial to see this information in future ASR's.

   Action: The Wirral Air Quality Steering Group has been created to bring together different departments that are responsible for Air Quality to help share information, prevent silo working and aide with writing the ASR.

4. There are some minor errors within the contents of some of the tables in the ASR. Throughout the ASR details on Automatic station CM2 Wirral Birkenhead are not consistent with those on the AURN network. including the name, site type and OS Grid references. The details in the ASR for the AURN site should match those on the AURN Network in future ASR's.

Action: The tables have been crossed checked and amended.

5. There are some errors with the valid data capture for the monitoring period column for monitoring sites, where the results are not detailed at those sites with 12 months of data capture. This is noted in the appraisal of the 2021 ASR which states "relevant monitoring periods has not been included within any of the tables detailing monitoring results. Although this may be the same value as the data capture for the calendar year this should be detailed" The ASR responds to these comments by stating "Data capture has been logged in the 'Valid Data Capture for Monitoring Period (%)' column where monitoring has not been undertaken for the full 12 months monitoring period. However, this should be undertaken for monitoring sites where monitoring has been undertaken for the full 12 months in future ASR's

   Action: The valid data capture for monitoring period column has been completed for all tables.

6. Maps are presented; however, it is difficult to identify the monitoring locations as the colours used for the monitoring sites clashes with the base map. This should be revisited in future ASR's.

   Action: A new colour has been used to identify the site locations this year. The sites were highlighted in pink in the 2022 report, they are now orange.

7. There are a number of formatting errors within the ASR. Future ASRs should ensure that the ASR template is used and a thorough review of the reports are undertaken prior to submission.

   Action: Noted for 2023 report.

Progress with Measures

Wirral 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 2.1. 41 measures are included within Table 2.1, with the type of measure and the progress Wirral 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 2.1.

More detail on these measures can be found in their respective Action Plans and Strategies, a list can be found below:

- City Region Sustainable Transport Settlement (CRSTS)
- Combined Authority Transport Plan (CATP) programme for 2023/24
- Cool2 Climate Change Strategy
- Liverpool City Region Road Safety Strategy 2022
- Wirral Community Safety Strategy 2021- 2026
- Wirral Plan 2021 - 2026
- Active Travel Strategy (in development)
- Environment and Climate Emergency Action Plan
- Development and Regeneration Strategy for Wirral 2021-37

Key completed measures are:

Hybrid Buses and Retro Fitted Emissions Reduction Technology

There are currently forty-four hybrid buses in operation in Wirral, which are operated by Arriva. There are also twenty-two buses operating for Arriva Wirral from Laird Street, Birkenhead that have been retrofitted to Euro 6 standard: the most rigorous European standard for emissions. Stagecoach (Rock Ferry) have seven vehicles manufactured from new to Euro 6 standards and six vehicles that have retrofitted to Euro 6 standards. This is for a peak vehicle requirement of forty-seven.

The Liverpool City Region Combined Authority (LCRCA) has purchased twenty hydrogen buses which will enter service from 5 May 2023 on the Liverpool to St Helens corridor. This is phase one of the plan and as more funding comes available it may be possible to purchase further batches of zero emission buses (hydrogen or battery electric) for use across the rest of the transport network.

Bus Alliance

The LCRCA formed the Bus Alliance seven years ago, in 2016. It is a formal partnership between Merseytravel and the area's two biggest operators, Stagecoach and Arriva. This alliance addressed several challenges and reversed the national trend of falling bus use. Since its introduction, the number of bus journeys young people made across the LCR rose by 168%, due, in part, to the day ticket, "MyTicket", which allowed unlimited day travel across Merseyside for those aged five to eighteen. In addition, there was half-priced bus travel for apprentices aged nineteen – twenty-four, which removed one of the key barriers identified

as prohibiting young people from undertaking vocational training. LCR has introduced a £2 flat fare across the bus network. Further information on the £2 fare can be found at https://www.merseytravel.gov.uk/bus/2-pound-bus-fare/

In March 2022, the LCRCA stated that bus franchising is their preferred option and requested that an assessment be completed and, as per the guidelines, that an independent audit of the assessment be carried out. The Assessment was completed in February 2023 and concludes that franchising is the best option to deliver the Combined Authority's objectives. The Assessment was independently audited, with a clean audit issued in February 2023. On 3 March 2023, the LCRCA agreed that bus franchising remained the preferred option and that the assessment should move on to the next phase, which is a formal statutory consultation. Consultation is expected to commence in June 2023 and will run for twelve weeks. A final decision is anticipated by the end of 2023.

Park and Ride

Wirral Council, in partnership with Merseytravel, has provided a network of rail based free park and ride schemes at most train stations in Wirral. You can find further details regarding parking facilities by visiting Merseyrail's website.

Planning

- Planning Controls

  The Unitary Development Plan (UDP), as saved by direction issued by the Secretary of State on 18 September 2007, along with the Joint Waste Plan for Merseyside & Halton (adopted 18 June 2013) forms the statutory development plan for Wirral, which is used for determining planning applications in accordance with planning law. When applicable UDP Policy TRT3 'Transport and the Environment' and UDP Policy PO1 'Potentially Polluting Development' and Waste Local Plan Policy WM12 'Waste Management Development' make provision for assessing the impacts from new development on air quality in the determination of planning applications.

  Planning for both residential and industrial developments have a significant impact in air quality. By being involved at the pre planning stages of development,

Environmental Health Officers along with other colleagues from across the Council can scrutinise plans to ensure that the impact of development on Local Air Quality Management Objectives is considered.

The National Planning Policy Framework (NPPF) provides guidance to local planning authorities on how to assess the impact of proposed developments. The guidance suggests that the planning system should "contribute to and enhance the natural and local environment", it goes on to state that planning authorities should do this by: "preventing both new and existing development from contributing to or being put at unacceptable risk from, or being adversely affected by unacceptable levels of soil, air, water or noise pollution or land instability".

The NPPF also reiterates the importance of compliance with the European Union (EU) limits values for pollutants and the cumulative impacts on air quality from individual sites in local areas.

To assist on the implementation of this framework, there is a series of Planning Practice Guidance Documents, including one specifically on Air Quality. As the Council's Core Strategy is developed, there are opportunities to encourage, support and promote actions that will protect or improve Air Quality.

- Regeneration Projects

  The Draft Birkenhead 2040 Framework, (BRF) defines the Vision and ambition for the transformational regeneration of Birkenhead. The Local Plan designates eleven Regeneration Areas across the Settlement Areas of the Borough. The Regeneration Areas will deliver a significant proportion of planned growth over the plan period. Eight of these Regeneration Areas are located in the BRF area. The three remaining are designated at Liscard, New Brighton and New Ferry.

Local Plan

Wirral Local Plan 2021-2037 Submission Draft, is currently being examined in public. This Local Plan sets the framework for future land use planning decisions over the next fifteen

years between 2020 and 2037. Within this plan, it will allocate sufficient land to meet the need for housing for the whole of Wirral. It will provide for a minimum of 13,360 net additional dwellings and 65.6 hectares of employment land.

An Air Quality Modelling Study was commissioned to help in the preparation of the final stages for the new Local Plan before submission to the Secretary of State for public examination. This assessment considered nitrogen dioxide (NO2) and particulate matter (PM10 and PM2.5) and concluded that there are no predicted exceedances of the relevant national air quality objectives for England at any development allocation receptors, in the future assessment year.

The air quality modelling study made recommendations regarding implementing air quality monitoring in several locations. Based on these recommendations, in 2021, four passive diffusion sites were installed and in 2022, five real time monitors were installed. It must be noted that these real time monitors are providing indicative data only, as the technologies used have not been approved by DEFRA, as being equivalent to reference methods of monitoring. The results obtained will therefore not be included in ASR reports but will be used to inform future monitoring requirements / actions.

Within the Local Plan there are several policies, which refer directly to air quality, and others such as encouraging active travel, carbon emissions reduction and development design principles, that are identified as beneficial to local air quality. Air Quality Assessments for proposed developments will be required where appropriate and mitigation measures against any impact on air quality agreed through the planning application process. Air Quality clauses within Local Plan policies are included to adequately address any air quality issues arising from development or neighbouring uses.

These clauses prevent uses which would cause an Air Quality Management Area to be declared and ensures practical measures have been taken to minimise pollution levels and mitigate the impacts of the pollution, including exposure to air pollution. Air Quality provides a justification for other policies including WS1.1 (Development and Regeneration Strategy – Homes) and WS9 (Strategy for Transport) to reduce the need to travel and support active travel to reduce the impact of traffic flows on local communities.

Walking and Cycling Infrastructure

Wirral Council is developing the walking and cycling infrastructure within the borough, with a particular focus in line with the local plan and the proposals to bring forth developments within brownfield development sites, creating a sustainable left bank within the city region. An active travel strategy is being developed along with investment to implement walking and cycling routes that are compliant with LTN 1/20, which is the government's latest guidance on active travel routes. The strategy includes new walking and cycling routes around the docks between Birkenhead and Wallasey, to support the Wirral Waters development. It also includes the development of a strategic route linking New Brighton and Birkenhead, which is being developed in conjunction with the Combined Authority and the addition of the Sustainable Urban Development (SUD) Transforming Cities grant that is providing a 3.7km cycleway from Leasowe Station to Seacombe Ferry Terminal with 1ha of habitat improvements. The route will also cross the proposed New Brighton – Birkenhead strategic Cycle Route which is being developed. SUD WP6 was completed in December 2022.

The Council completed a new shared pedestrian and cycle facility along Beaufort Road and Wallasey Bridge Road, connecting Bidston Moss to Gillbrook Basin. The route includes a tiger crossing to connect to a new housing estate opposite and new tree planting along the route. The route provides a link between Leasowe and via Bidston Moss to the new developments of Wirral Waters in the docklands and on to Seacombe Ferry Terminal. The scheme was funded through the SUD (EU) Fund and the Transforming Cities Fund.

Public Rail Transport Improvements

Funding of £460 million was invested by the LCRCA in December 2016 to directly purchase new trains to replace the existing 40-year-old train fleet that currently runs on the network. Delivery of the new fleet has commenced, with the first new train delivered in January 2020. Merseyrail is supporting the comprehensive testing programme for the new trains, prior to their introduction into passenger service.

The first new train entered service on the Kirkby line on 23 Jan 2023. Since then the new trains have now been fully introduced on the Kirkby line and roll out has commenced on the Ormskirk line. Once they have been fully introduced on the Ormskirk line, roll out then will move to the Wirral Line in next few months followed by the Southport / Hunts Cross line at

the end of the year / early next year. The new trains are more energy efficient than the existing trains, which are now over forty years old. There is an anticipated reduction in energy consumption of around 20%, which will reduce carbon dioxide emissions. The new trains will have over 50% additional passenger carrying capacity and 10% journey time reductions. An option exists to add powerful battery electric capability to them as has been done for 7 units to serve Kirkby Headbolt Lane. Options are being explored for future expansion of the Merseyrail network exploiting the battery electric capabilities once the new trains have been fully introduced subject to resources, this includes discussion with Welsh Government about possible use on the Bidston to Wrexham (Borderlands Line).

Combined Authority Transport Plan Programme

In 2021, the Liverpool City Region Combined Authority awarded Integrated Transport Block funding to Wirral Council, to support the delivery of the Liverpool City Region Combined Authority Transport Plan Programme during 2021/22. This funding is now known as City Region Sustainable Transport Settlement (CRSTS).

In 2022, the CRSTS awarded funding to Wirral Council. All the proposed programme of works set out in the 2023/24 CRSTS CATP programme generally have environmental benefits and are aligned with regional and Wirral emission targets and support for active transport, as set out in the Liverpool City Region's Pathway to Net Zero Strategy and the Cool2 Climate Change Strategy for Wirral. Many of the Local Journey and Network Management projects are aimed at improving access to the highway network which will help to support better air quality across the borough and enable a greater number of journeys to be undertaken by sustainable modes, therefore reducing residents' reliance on the private car and reducing carbon emissions. Other projects will improve environmental safety for highway users.

Increasing cycling and walking will help combat climate change. By encouraging and enabling people to travel more on foot and by cycle instead of private car harmful emissions will be reduced. Promoting active travel can result in reduced emissions of Nitrogen Dioxide (NO_2), particulate matter (PM) and CO_2 helping to tackle climate change and improve air quality.

Wirral Council Network Management Plan

The Plan sets out how Wirral intends to make transport accessible for all, to enable everyone to move around and access the goods and services they require. A joined-up transport network helps Merseyside to grow and to be a better place to live, but the biggest challenge is to achieve this growth in an environmentally sustainable way with equal opportunity for all. Consequently, it has five objectives:

1. Provide appropriate infrastructure for regeneration.
2. Ensure accessibility for all.
3. Manage demand through effective management strategies and awareness programmes.
4. Promote healthier communities.
5. Protect and enhance the environment.

The vision of the plan is to encourage:

- More people walking and cycling to become fitter and healthier.
- More people using public transport to reduce air pollution and congestion.
- More people using technology to make journeys easier e.g., journey planning, smart ticketing.
- More people being able to access local centres by bus or by walking and cycling.
- More public transport, cycle facilities and pedestrian facilities provided across the borough.
- Less people using their cars, especially for short journeys.
- Less accidents and injuries on our roads.
- Less cars on our roads.
- Less emissions from cars, buses and lorries; and
- Less congestion and delay.

Wirral Council has a statutory consultation process that is required for the undertaking of work on the adopted highway which will require public consultation, objections to which would be considered under the Scheme of Delegation in the council's Constitution or by the Environment, Climate Emergency and Transport Committee once a level of objections have been reached exceeding the current scheme of Delegation number.

Wirral Active Travel Forum

The Wirral Active Travel Forum is a formally constituted group, which meets quarterly with interested public and private organisations and individuals. The group supports active travel as a simple, low cost and effective way for people to access life opportunities, whilst increasing levels of physical activity in their day-to-day life. Membership of this group is open to all, and the forum will continue to be engaged as these programmes develop.

Cycle Training for Schools

Cycle Training is offered to all Wirral Schools by the Bikeability provider selected by the Liverpool City Region. This promotes safe active travel for pupils on the journey to and from school. During 2021/22 further funding enabled a 'Own the ride' pilot project to be trialled in Wirral to benefit secondary school pupils, this is the first time the project had been trialled outside of London. The Council's Road Safety Team support schools with safe sustainable travel and active travel initiatives.

Modeshift Stars

Modeshift STARS is a nationally accredited initiative, supported by the Department for Transport (DfT). The STARS Education scheme recognises schools and other educational establishments that have shown excellence in supporting cycling, walking and other forms of sustainable and active travel. The Junior Travel Ambassador initiative runs concurrently in these schools by elected pupils to take the message of safe, active and sustainable transport to their peers.

An Active Travel Officer has been employed utilising external grant funding provided via the Liverpool City Region to work with schools delivering the School Street initiative and Modeshift. This aims to reduce cars travelling in and around school locations to reduce emissions and air pollution. A total of six school street for an eighteen-month pilots were established, with three being made permanent in May 2023. In 2022, seven schools were Modeshift Stars accredited and further schools were submitted in March 2023, awaiting outcome.

Road Safety

- The Mind Your Business initiative has been working with local employers to promote eco driving in addition to raising awareness of safe driving practices.

- A borough wide visibility campaign has been designed to encourage road users to keep themselves and others safer. This supports the road safety activities we are delivering to promote safe sustainable / active travel.
- Merseyside Road Safety Partnership has produced a new Liverpool City Region Road Safety Strategy which was approved by Liverpool City Region Combined Authority in November 2021. A Wirral Road Safety plan will be developed to complement the regional strategy.
- Wirral Council are coordinating visits from NSL Parking Enforcement to support the education initiatives within schools.

Wirral Council Vehicle Fleet

- **General Fleet**

  Unleaded petrol or bio diesel is used to fuel the Council vehicle fleet and Adblue (a non-toxic, non-flammable, odourless and biodegradable solution designed to help diesel vehicles meet the latest Euro 6 exhaust emission regulations) is added to all diesel vehicles during routine servicing. In addition, regular emissions tests of vehicles are undertaken during routine servicing.

  A green transport review has recently been undertaken to identify options available and the way forward to make the council fleet vehicles greener e.g., moving away from diesel vehicles.

- **Gritter Trucks**

  All of the gritter fleet is fitted with diesel particulate filters and exhaust systems to reduce emissions.

- **Biffa**

  Biffa are contractors for the Council, providing waste collection services. Biffa use a total of thirty-four refuse collection vehicles in Wirral, all of which all are Euro 6 specification (the most rigorous European Standard for emissions).

Permitted Processes

Environmental Health and the Environment Agency (EA) play a significant role in controlling point sources of pollution nationally. Certain industrial processes whose activities emit pollutants into the environment are required to operate under an Environment Permit. Under the Environmental Permitting (England and Wales) Regulations 2016, Wirral Council has issued and monitors forty-eight permits for industrial activities across the borough. These span over nine different sectors: storage terminals, cement and lime, other minerals, combustion and incineration, tar and bitumen, coating, animal and plant treatment, petroleum and solvents sector. Environmental Health and the EA ensure that the operators of the permitted processes carry out their undertakings in accordance with the conditions as described in their Environmental Permit. This includes permitted levels of certain pollutants.

Electric Vehicle Charging Network

The development of an electric vehicle charging network has been slow to develop in comparison to the uplift in sales of electric vehicles. The cost of electric vehicles, however, are still relatively high in comparison to an internal combustion engine vehicle, which means that they are not yet accessible for all households. The charging of vehicles from households is also an issue, where there is a lack of off-street parking, which restricts the ability for a charge point to be connected from the owners' house to the vehicle without crossing the footway. The council has undertaken a pilot project, using funding received from Office for Zero Emission Vehicles (OZEV), that has installed fifty-three charge points on street lighting columns within the borough and is monitoring the uptake closely. The charge points were installed in October 2021 and so far have used 38,769 KwH. The private sector has also been slow in delivering charge points with most charge points within the borough located within supermarket car parks or at hotels. A planning application has however been approved for an electric vehicle charging station just off the A41 in Bromborough.

Wirral Council has five chargers, with ten charging points, in three local authority locations: Secombe Ferry Terminal, Birkenhead North Park & Ride and Elgin Way Car Park (near to Birkenhead Hamilton Square Train Station). There are a further eighteen chargers with thirty-six charge points at supermarkets and hotels within the borough. The Authority also encourages the installation of Electric Vehicle charging points when making improvements to their own facilities. Recharge points are installed at the Cleveland Street Depot and data shows that the charging points are being utilised.

Wirral Climate Change Strategy

Climate change has become an even more urgent priority since the latest evidence was presented to the United Nations (UN) by the Intergovernmental Panel on Climate Change. Wirral Council declared an environment and climate emergency in July 2019. A new climate change strategy, Cool 2, was agreed by the Cool Wirral Partnership in December 2019 and subsequently endorsed by Council. The strategy seeks to keep within a local carbon budget, compliant with the UN's Paris Agreement and anticipates reaching net-zero carbon emissions in Wirral by 2041. The strategy should provide positive benefits for local air quality, as local objectives are met. The strategy includes an objective for a "complete transition to fossil fuel free local travel by around 2030". The Council also has an Environment and Climate Emergency Action Plan (CEAP), which set the ambitious but achievable target of the Council and its entity being 'net carbon neutral' by 2030. The CEAP was developed in 2020 and is designed to drive fundamental change to the way the Council operates, makes decisions, and provides services. The plan contains a significant number of actions to transform the Council, including the roll out of e-cargo bikes for internal deliveries for the Council. Relevant priority actions for 2022/23 are the production of an Electric Vehicle strategy for the borough and to establish a green fleet strategy.

Wirral Public Health Activities

Wirral Joint Strategic Needs Assessment (JSNA) on Air Quality

A chapter on Air Quality is included as part of the JSNA. This is reviewed annually and provides a summary of key pollutants, the impact on health and priority actions in Wirral. The most recent JSNA for air quality was published in September 2022. This included a review of the impact of the pandemic and any ongoing behaviour change for example, increased active travel and reduced road and car use.

Audit of Wirral's Local Air Quality Actions

In September 2019, an audit of Wirral's local air quality actions, using Public Health England recommendations was undertaken. Following this audit, a list of recommended actions was formulated, which were outlined in a report to the Health and Wellbeing Board in November 2019. The recommendations are:

- Air pollutants (specifically NO_2 and $PM_{2.5}$) continue to be strategically monitored across Wirral to identify long term trends and areas for action locally.
- Continue to annually review and update the Outdoor Air Quality Joint Strategic Needs Assessment.
- Wirral Council maintains its current commitment to air quality, evidenced by the absence of Air Quality Management Areas, and considers extending membership of the Wirral Air Quality Group to include health partners and other anchor organisations.
- NHS partners use their Sustainable Development Management Plans to deliver on the air quality goals in the NHS Long Term Plan and share how they are supporting patients and staff to reduce the health impacts of air pollution.
- Prioritisation of air quality activities is based on the hierarchy of interventions (prioritising prevention of emissions over reducing/avoiding exposure).
- Air quality initiatives continue to employ a focus on vulnerable populations and foster collaborations with internal/external stakeholders and the wider community.
- Embed actions related to air quality emerging from the Health Impact Assessment of the Local Plan.
- Local air quality interventions are formally evaluated to identify/share good practice.
- The Wirral Air Quality Group considers drafting a dedicated local air quality plan to clearly and comprehensively define local air quality commitments, priorities and monitoring/evaluation over the next five to ten years.
- Key strategic plans for the borough embed air quality considerations across all actions, prioritising initiatives that deliver a net health gain within the local population.

The Health and Wellbeing Board supported these recommendations and Public Health England (now known as UK Health Security Agency (UKHSA)) commended Wirral's approach.

Secure Cycle Storage

Secure cycle storage is offered at the majority of train stations in Wirral and aims to encourage people to cycle to their nearest train station for the next stage of their journey by train, by providing secure bike storage facilities, as well as bike racks. Wirral Council also facilitate and coordinate Bikeright delivery within schools and provide schools with cycle storage to facilitate the modal shift and promotion of cycle storage via external funding in line with proactive encouragement and modal shift projects.

Highway Maintenance

Wirral Council is responsible for approximately 737 miles of road throughout the borough. The council's maintenance programme invests in our roads to fix problems with potholes and other surface issues. A team of inspectors, routinely check every road in Wirral on an annual basis, with some roads being inspected more frequently due to their location. The roads in this programme are chosen for repair after surveys have been completed and put together with reports from highways inspectors, councillors, and residents.

Traffic Management

Parking Controls

The Council's Civil Enforcement Officers and CCTV vehicle enforce illegal parking whilst Merseyside Police enforce dangerous parking in the vicinity of schools and support the safe, active travel education initiatives.

School Crossing Patrols

The School Crossing Patrol Service enables families to walk, cycle and scoot to and from school. Wirral Council manages over 60 crossing patrol sites.

Anti-idling Legislation

Wirral Council formally adopted the Road Traffic (Vehicle Emissions) (Fixed Penalty) (England) Regulations 2002, to address localised air pollution hot spots. Enforcement officers also now patrol key areas of concern, usually highlighted by residents, and speak to any drivers found idling their vehicles, ask them to turn off the engine where possible and give them an information leaflet to educate drivers on the dangers of idling.

Liverpool City Region (LCR) Air Quality Task Force

Air Quality Action Plan

This Air Quality Action Plan has been informed and overseen by the LCR's Air Quality Task Force and has been developed in two stages, via an Interim Plan endorsed by the Combined Authority in November 2019 and this Final Plan considered and endorsed in December 2020.

The plan forms a key supporting document for other Combined Authority plans and programmes, notably the draft Local Industrial Strategy, Climate Action Plan, Housing Statement and Spatial Development Strategy, as prominent examples.

The move from the Interim Plan in November 2019 to this finalised Plan has been heavily influenced and framed by the Coronavirus pandemic. The recovery plan developed by the Combined Authority and its partners in response provides a further imperative to "build back better". Very clearly, addressing poor air quality and capturing some of the benefits seen during lockdown in air quality terms are critical components of this approach. This has meant that the original objectives and actions set out in the Interim Plan have been further validated and strengthened by the post-pandemic environment that we now live and work within. The actions have thus been refreshed and reframed rather than re-drawn.

The Plan and the actions contained within it will be managed and overseen by the Combined Authority, aided by the Overview and Scrutiny Committee. However, constituent local authorities will also be encouraged to report and ratify the plan through their own governance structures.

The Objectives of the Action Plan are:

1. To support the Liverpool City Region's local authorities in their mandate to reduce harmful atmospheric emissions to within statutory levels in the shortest possible time, as a minimum, and preferably, to better and exceed these minimum target standards. This is in tandem to achieving the net zero carbon target by 2040.
2. To support the local authorities in the revocation of Air Quality Management Areas in the shortest possible time.

3. To avoid the need to declare new Air Quality Management Areas across the city region in respect of nitrogen dioxide emissions or any other harmful pollutants.

The action plan is divided into four main sections: -

1. Actions by the Combined Authority
2. Recommended actions to local authorities and our partners
3. Actions for the LCR's residents, communities and businesses; and
4. Recommended actions to Central Government and its agencies

Where appropriate these are then divided into short term and longer-term actions: -

- Short term – for action or delivery immediately or within the next 12 months
- Longer term – for action or delivery with the next 24-36 months

Council Workplace Travel

Wirral Council encourage the development of a sustainable workplace, to both protect the environment and to encourage a healthier workforce. In order to facilitate this, the Council has implemented a number of measures, which impact on air quality, including:

- Encourage / Facilitate home-working – employees can use laptops and secure access to the Authority's network to reduce the need to travel to the workplace. Following on from the requirement for staff to work from home due to Covid, a new hybrid working policy produced to support staff working remotely for part of their working week if their role allows. Although the staff commute is outside the scope of our reporting, reducing staff travel to and from the office will reduce emissions for the wider borough and contribute to the Cool 2 strategy. Further work will be done on this to calculate the benefits through a staff travel survey and strategy.
- As part of the move to the new Council building in the Birkenhead Commercial District it will be a key requirement that a move towards more sustainable modes of transport is incorporated. A staff travel survey is planned for 2023/24 with a view to developing an updated staff travel plan.
- Encourage cycling, through the bike loan scheme and the supporting infrastructure through the 'Go Cycle' facilities. The Salary sacrifice scheme cycle to work scheme for staff was run in summer 2022. 18 people took part in the scheme which enabled them to purchase bikes and cycling equipment, with a total spend of £20,779.

- Encourage the use of public transport, through the promotion of the Transport pass loan scheme.

Regional Air Quality Meetings

Wirral Council is represented on the Liverpool City Region and Cheshire Air Quality Group (AQTECH), which considers relevant local and regional matters relating to air quality. This group meets once every three months to share best practice, knowledge and legislation updates.

Wirral Council Cross Departmental Air Quality Group

The Wirral Air Quality Group has representatives from several departments including Environmental Health, Public Health, Transport, Licensing and Forward Planning. The group aims to meet three times per year and co-ordinate the Council's obligation to manage air quality. The group was not able to meet during 2020 and 2021, as the availability of staff was impacted by the Council's response to the Coronavirus pandemic. The group did meet at the beginning of March 2022, but longer term, the group has now been replaced by the Air Quality Steering Group that is currently meeting once a week, but this will eventually become less frequent once the Air Quality Strategy is published and actions are in process.

Anti-idling Actions and Wirral Clean Air Campaign

Wirral's Clean Air Campaign was launched in June 2019 and aims to help the Council to engage with the public to increase awareness of air pollution and the small changes in behaviour that people can make to improve air quality. The main message of the campaign is 'You're the key'. It will also be used to inform the public that drivers in Wirral may be issued with a fine if they do not switch off their engine when asked by an authorised officer, following adoption of the anti-idling regulation in 2018. In addition to this during 2022, Environmental Health and Licensing Officers have attended the taxi rank in Liscard to deliver key messages to drivers and inform them of the harms of idling and safer ways to work.

Taxi Licensing

Wirral Council has a Policy relating to the age of licensed vehicles. Once private hire vehicles reach 6 years old, they are only issued with a 6-month licence which means an

MOT and Compliance Test is required every 6 months should the vehicle owner wish for the vehicle to remain licensed. As part of the MOT a vehicle emissions test must be satisfied. If a private hire vehicle fails to pass the MOT or Compliance Test a licence will not be granted. Once a private hire vehicle reaches 10 years old it would not normally be granted a further licence.

Once hackney carriage vehicles reach 10 years old, they are only issued with a 6-month licence which means an MOT and Compliance Test is required every 6 months. As part of the MOT a vehicle emissions test must be satisfied. If a hackney carriage vehicle fails to pass the MOT or Compliance Test a licence will not be granted. To date, Wirral Council has issued two licences for electric hackney carriage vehicles which are currently in operation in Wirral. The Regulatory Panel also approved a new Private Hire electric vehicle and a new Hackney Carriage electric vehicle at their meeting on 11 June 2021.

The Air Quality (Taxis and Private Hire Vehicles Database) (England and Wales) Regulations 2019 came into force on 1 May 2019. The 2019 Order requires all licensing authorities in England and Wales to send to a central portal monthly, certain information about the taxis and private hire vehicles that they have licensed. This includes the Vehicle Registration Mark, the start and expiry date of the vehicle licence, whether the vehicle is a taxi or private hire vehicles, the name of the licensing authority, the licence plate number and an indication of whether it is a wheelchair accessible vehicle. Wirral Council sends this information in accordance with the Regulations.

Living Streets WOW walk to school project.

Living Streets Walk to School Outreach project continued supporting schools during the Coronavirus pandemic, right from when the lockdown started in March 2020. When schools went into the lockdown in January 2021, they adapted Travel Tracker to have ‘learning from home’ options, so families could log on and children record any activity they had done.

When schools returned in September 2021, the Travel Tracker returned to normal (travel to school modes) and they brought in new ways of delivering like virtual launch assemblies where teams were beamed into classrooms, or schools using a recorded assembly. They also launched a leader board, both local and national. Wirral school Poulton Lancelyn topped the national leader board in October last year (International Walk to School Month).

This meant both their active travel rate and the level of engagement from each class was the highest in the country.

Eighteen schools are actively participating in the Department for Transport funded WOW in Wirral (out of 76 across the whole LCR) supported by two coordinators. These schools have high engagement, with pupils logging their trips every day using our online Travel Tracker.

The Combined Authority has boosted the reach of WOW this year, using the Active Travel Fund (ATF) to provide a third coordinator and support additional schools. Three are in Wirral. This gives us a total of 21 Wirral schools participating in WOW this school year.

Joint LCR Educational Air Quality Website

The new Lets Clear the Air LCR Air Quality website, was launched in 2019 and is an educational website on air quality, which is aimed at children. It is regularly updated by various members of AQTech with relevant news stories and is also used by ECO schools across the Liverpool City Region.

Participations in National Clean Air Day 2022 and 2023

Clean Air Day 2022 was held on June 16th, 2022. Wirral Council contacted all primary and secondary schools with lesson planning resources, advice and newsletters for parents and held a banner competition with a £250 prize for the best Clean Air Day 2022 banner. Information was also provided on the environmental initiative for their school that the money could be spent on. The Council also teamed up with Arriva Northwest to raise awareness of anti-idling on our transport network and held a “social media takeover” dubbed “Green Month” on all Wirral Council communication platforms. Sharing information about ways to be sustainable and improve Air Quality on the borough in association with the Climate Management Team.

Clean Air Day 2023 was held on June 15th, 2023 and Wirral Council held a Clean Air Day Conference for participating schools at the Eureka Science Museum. The event was attended by children representing the schools who joined the challenge set by Grove Street primary school, to create their own clean air campaigns to promote active travel and reduce traffic around their school. The children shared information on the activities they had

undertaken with the other schools. They were joined by asthma nurses for a Q&A session; doctors from Alder Hey so the children could listen to their breathing; Roy Castle Lung Foundation and their giant inflatable lungs; Living Streets and their mascot Strider; Asthma and Lung UK, and a Professor from Liverpool John Moores University, who talked about active travel and a new app that the children could use to track their active travel and the benefits to the environment. The children also created their own pledges for improving air quality and recorded short video clips containing messages they wanted to share with the attendees of the air quality workshop, which involved representatives from a broad range of external stakeholders, including private organisations, the community and public sector organisations, coming together to help shape and inform this air quality strategy for the borough.

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

Wirral's Air Quality Strategy and Action Plan

Wirral Council is currently progressing with the development of an Air Quality Strategy. This strategy will cover both indoor and outdoor air quality and will showcase the great work that is already been undertaken across the Council that has positive impacts on air quality and identify areas for future action. An action plan will be developed to support the implementation of this strategy and progress with its aims and objectives.

As part of the development of this strategy a successful and well attended workshop event was held, involving representatives from a broad range of external stakeholders, including private organisations, the community and public sector organisations (e.g. Merseyside Waste Authority, Magenta Living, Forum Housing, UK Asthma and Lung Charity, Koala Little Lungs, NHS, Fire Service, Liverpool City Region Representatives, Liverpool John Moores University etc.), enabling them to come together to help shape and inform this strategy. A public consultation will also be undertaken.

Transport Planning

LCRCA is currently working on a new Local Transport Plan 4 (LTP) and a consultation is anticipated on the Preferred Strategy and Integrated Assessment in Sep / Oct 2023, subject to LCRCA approval. After being finalised and approved by LCRCA, the LTP will be taken

through the processes for final approval. It is anticipated that it will be adopted in Spring 2024, subject to unexpected delays or delays to the DFT LTP Guidance and Quantifiable Carbon Reductions Guidance that may impact upon this proposed timescale.

The project timeline until 2027, is set out in our City Region Sustainable Transport Settlement (CRSTS) 1 process, which is now agreed with Department of Transport. It has been indicated that there will now be an CRSTS 2 process for 2027-2033. So LCRCA is developing a rolling project pipeline in five-year intervals for these CRSTS periods and into the future.

Road Safety - 20 mph Roads

The introduction of 20mph speed limits is most beneficial in residential, shopping and school areas and therefore each of the zones has been chosen based on the type of area as well as collision data. Main roads (also known as A and B roads) are suggested to keep their current speed limit and not be changed to 20mph unless it (or parts of it) run through local centres (such as residential areas, schools and shopping places or leisure facilities, hospitals and public transport routes).

Schemes identified within the 2023/24 Combined Authority Transport Plan programme meet the priorities of the Road Safety Working Group including phase 2 implementation of the borough wide 20mph speed limit project and working with partners on the promotion and roll out of education and enforcement proposals.

School Streets

Wirral Council has implemented School Streets initiatives that involve closing streets immediately outside school gates at drop-off and pick-up times to most vehicle traffic (there are exemptions for residents, blue badge holders, emergency services etc.). It aims to create safer and more pleasant environment for everyone around the school by encouraging walking, cycling and scooting or parking further away from the school and walk the last part of the journey and by preventing vehicles from entering specific roads around the vicinity of the school. Wirral Council have delivered six School Street pilots across Wirral, three have

been made permanent (as of May 2023) and the remaining three are undergoing monitoring in line with the timeframe for the experimental traffic regulation order (ETRO).

There are many School Streets around the country, and where they are in place, more children walk, cycle and scoot to school, air quality is improved and there is less traffic congestion.

Each school will have a Junior Travel Ambassador scheme, which focuses on safe, active travel communication to peers & parents.

Living streets are working closely with Wirral Council to support their School Streets work at Greenleas, Christchurch and Liscard Primary schools, delivering school route audits and engaging parents to hear their views.

Bebington Liveable Neighbourhood Project "By Ours"

Wirral Council's Road Safety Team is working in partnership with LCRCA, Sustrans, Living Streets and local stakeholders to deliver this community-based project in Bebington. The aims of the project are to:

- Create high-quality public spaces that prioritise people over cars.
- Encourage more people to take journeys on foot, cycle or other active transport modes, reducing their carbon footprint.
- Create low-traffic areas and remove rat running.
- Provide opportunities for better social connections, thriving local economies and more sustainable living; and
- Give people the say in the design of their streets and foster more active and empowered communities.

Mersey Ferries

One new-build ferry, which will be greener and more energy efficient, has been ordered by the LCRCA from Cammell Laird / Damen. One existing vessel will be extensively refurbished to life extend it to around 2027. Options for an additional newbuild will be considered.

Extensive refurbishment has been undertaken at Seacombe Ferry Terminal and refurbishment is planned to the landing stages at Woodside Ferry Terminal.

Active Travel Strategy

An active travel strategy is being developed by the council, the strategy includes an advocacy document setting out the benefits of active travel and the reasons to develop a coherent network for pedestrians and cyclists. The second stage of the strategy is the identification of the network and a plan for bringing it forward, this will be developed within the next 12 months.

Project to Reduce Particulate Emissions from Domestic Burning.

The National Clean Air Strategy 2019, states that wood-burning stove emissions are now the biggest source of PM pollution in the UK, making up 38% of UK air pollution.

Wirral Council has obtained funding from DEFRA to support a project to improve air quality by reducing particulate emissions from domestic burning at source, targeted mainly at wood burning stoves but also considering other domestic burning. This project will enable Wirral to work towards meeting the targets for $PM_{2.5}$ set out in The Environmental Targets (Fine Particulate Matter) (England) Regulations 2023.

The project aims to reduce emissions of particulate matter at source, through a variety of initiatives and interventions aimed at suppliers and installers of solid fuel appliances, maintenance professionals, solid fuel, wood and biomass suppliers, households and allotment holders.

The project has two main objectives, the first is to reduce particulate matter from domestic burning at source, through an information and education campaign alongside a review of legislation and enforcement options. The second is to provide residents, particularly those more vulnerable to the health effects of air pollution, with the knowledge to protect themselves from air pollution through delivery of an information and awareness campaign delivered in community and public health settings. The project will be launched mid-2023 and an update will provided in ASR 2024.

School Air Quality Project.

The aim of the project is to facilitate schools in Wirral to implement low-cost measures aimed at increasing the number of children who are actively travelling to and from school rather than using motor vehicles. This will help to reduce vehicle activity around the school at drop off and pick up times and reduce the number of drivers who idle their engines whilst parked outside school. Reductions in vehicle activity around the participating schools will have a positive impact on the air quality around the school. The project was led by Grove Street Primary School, who sent out a challenge to other schools to join them. Sixteen other schools accepted the challenge to join in. A selection of participating schools attended a conference on Clean Air Day 2023 to outline their project and share ideas for future projects.

Wirral Road Safety Plan

Development of Wirral Road Safety Plan which sits under the LCR Road Safety Strategy and aims to develop and deliver further improvements to road safety in Wirral, creating safer and vibrant communities so more people choose to walk and cycle. Safe Systems approach is utilised considering Safe Vehicles, Safe Speeds, Safe Streets and Safe Behaviours as the core components.

Air Quality Monitoring

Wirral Council will continue to monitor air quality in Wirral, to identify any possible exceedance of the national air quality objectives and to continue to contribute to the wider regional air quality improvements, through co-operation with Liverpool City Region.

A monitoring location review was undertaken at the end of 2021. This review assessed whether monitoring was still being undertaken in the most relevant locations, using the sources of information identified above, as well as the available results from previous years of monitoring at each site. Following this review, two passive diffusion tube monitoring sites for NO2 were removed, due to either the inability to access the site or unauthorised removal. The sites that were removed was W22/19, part way through the year, and W47.

It was decided that one new passive diffusion tube monitoring sites for NO2 would be introduced in January 2022 and that the two sites that were removed would be relocated. The three new monitoring sites that were introduced are W22/22, W47/22 and W65.

In addition to these passive diffusion tube monitoring sites, five Realtime Zephyr monitors were introduced, which monitor NO_2, $PM_{2.5}$ and PM_{10} at various "hot spot" locations identified by the results and recommendation of the AECOM air quality modelling study, undertaken to support the development of the Local Plan. The locations are Poulton Road (Wallasey), Liscard Village (Wallasey), Bridle Road (Eastham), Arrowe Brook Road (Upton), Chester Street (Birkenhead). The information from these monitors is indicative and an update will be published in the 2024 Annual Status Report.

In summary, in 2022, fifty-three existing passive diffusion tube monitoring sites were retained, two existing monitoring sites were removed, three additional passive diffusion tube monitoring sites were introduced and five Realtime Multi-pollutant monitors were introducted in 2022. The two DEFRA AURN's monitor Nitrogen Dioxide concentrations in real time, and one also monitors particulate matter, specifically PM2.5. Therefore, the total number of passive diffusion tube monitoring sites located in Wirral for 2022 is fifty-six. There are two DEFRA AURN's monitoring Nitrogen Dioxide and five Realtime 'indicative' monitors for NitrogenDioxide and Particulate Matter.

The Air Quality priorities for the Council are as follows:

- To continue to robustly monitor air quality in the borough, to ensure the concentrations are within the EU objectives.
- To lead on the development of an Air Quality Strategy for the borough.
- To produce a Wirral Air Quality action plan, detailing the work that is planned and the work that is underway to support the implementation of the strategy.
- To commence the DEFRA funded project to Reduce Particulate Emissions from Domestic Burning.
- To fully utilise the planning system, in accordance with guidance, to effectively promote air quality.
- To regularly review its air pollution monitoring locations, to reflect the most up to date information e.g. traffic levels and emission sources, in order to provide a broad

understanding of air quality across the borough and meaningful air quality data that can be used as part of the planning application process (e.g. baseline data for air quality impact assessments submitted as part of planning applications).

- To continue to monitor the impact of air quality on the health of Wirral residents, by regularly reviewing the Joint Strategic Needs Assessment Air Quality chapter.
- To continue to work with our partners to encourage active travel and to make public transport cleaner and easier to use.
- To build up public participation and public engagement through Wirral's Clean Air campaign, which aims to raise awareness of air pollution and inform Wirral's residents that 'You're the key' to helping to improve local air quality. It highlights small changes in behaviour that can improve air quality and informs drivers in Wirral that they may be fined if they do not switch off their engine when parked. The focus for this campaign during 2022/23 has been on schools, linked to the air quality schools project.
- To capitalise on new and changed behaviours e.g. increased active travel, which may positively influence better air quality.

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

- Liverpool City Region Combined Authority
- Members of the Health and Wellbeing Board, including Wirral Community Health and Care NHS Foundation Trust, Wirral University Teaching Hospital, Healthwatch Wirral, Community Action Wirral, Wirral CCG, Clatterbridge Cancer Centre NHS Foundation Trust, Jobcentre plus, Merseyside Fire and Rescue).
- Cheshire East and Cheshire West Councils
- Sustrans
- Living Streets
- Biffa
- Merseytravel
- Green Bus Fund
- Merseyside Police

The principal challenges and barriers to implementation that Wirral Council anticipates facing are making the best use of the available resources.

Table 2.1 – 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	Hybrid buses and Retro fitted emissions reduction technology	Promoting Low Emission Transport	Public Vehicle Procurement - Prioritising uptake of low emission vehicles	2017		Merseytravel, Arriva, Green Bus fund	Defra Air Quality Grant	NO				Reduced vehicle emissions		Arriva buses operate 44 hybrid buses cross water from Liverpool to Wirral	
2	Bus Alliance	Promoting Travel Alternatives	Other		2023	LCRCA, Merseytravel, Wirral Council		NO				Reduced vehicle emissions		The number of bus journeys by young people in LCR rose by 168%, due, in part, to the day ticket, “MyTicket” - unlimited day travel across Merseyside for 5 - 18 year olds. Also, half-priced bus travel for apprentices aged 19-24.	Consultation stage 2 of bus franchising project due to be finalised end of 2023.
3	Park and ride	Promoting Low Emission Transport	Procuring alternative Refuelling infrastructure to promote Low Emission Vehicles, EV recharging, Gas fuel recharging	2018		Wirral Council	Merseytravel and DFT	NO				Reduced vehicle emissions		Park and ride places provided at the majority of Wirral’s train stations.	
4	Planning Controls	Local Plan, Policy, Guidance and Development Control	Other	2021	2037	Wirral Council	Wirral Council	NO				Reduce exposure to relevant emissions		Application of relevant planning guidance during the planning application process for New Developments and Regeneration Projects. Draft Local plan currently out for representations.	A public examination to test the legal compliance and soundness of the Proposed Local Plan is currently being held by an independent Planning Inspector appointed by the Secretary of State.
5	Provision of cycle paths	Promoting Travel Alternatives	Promotion of cycling	2017 onwards		Wirral Council	Dept of Transport, SUD (EU), Transforming Cities	NO				Reduced vehicle emissions		Installation of Active travel Fund (Tranche 1) scheme for Fender Lane. 3.7km of new cycle path and 1Ha habitat improvement at Leasowe.	
6	Public rail transport improvements	Promoting Low Emission Transport	Public Vehicle Procurement - Prioritising uptake of low emission vehicles	2017		Merseytravel and LCR funded	Defra Air Quality Grant	YES				Reduced vehicle emissions		New trains rolled out in the City Region, due in Wirral during 2023.	
7	Transport planning	Transport Planning and Infrastructure	Other	2021		LCR	LCR	NO				Reduced vehicle emissions		In 2021, the LCR CA awarded ITB funding to Wirral Council, to support the delivery of the Liverpool City Region Combined Authority Transport Plan Programme during 2021/22. Strategic projects such as phase 1 20mph project has been consulted on and measures are now being delivered on-site. Works	

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
														started early April 23 and expected to continue for approx 4 months.	
8	Network Management Plan	Traffic Management	Other					NO						UTC, Congestion management, traffic reduction, encourages active travel and use of public transport.	
9	Wirral Active Travel Forum	Promoting Travel Alternatives	Promotion of cycling			Wirral Council					Implemented	Public Engagement / Behaviour change		Promoting active travel with various stakeholders across the borough.	
10	Cycle Training	Promoting Travel Alternatives	Promotion of cycling	Ongoing	Ongoing	LCRCA / Wirral Council / Bike Right	LCRCA	NO	FUNDED		Implementation	Public Engagement / Behaviour change	Number of children/adults receiving cycle training in the borough. Number of schools taking up the free offer. Numbers of children/adults involved in casualty stats.	All schools offered cycle training. Training available for all Wirral residents. Impact on delivery due to availability of cycle instructors to deliver within schools, access to bikes and the take up of the free cycle training by adults	
11	Mode shift stars	Promoting Travel Alternatives	Promotion of walking	2021	2024	LCR / Wirral Council	LCRCA	NO	FUNDED	£4000 annually	Implementation	Public Engagement / Behaviour change	Number of schools accredited, and level of accreditation submitted.	An Active Travel Officer works with schools delivering the School Street initiative and Modeshift. In 2022 7 schools accredited. Further schools submitted March 2023 awaiting outcome.	Scheme progressing, break in delivery between August 2022 to January 2023 due to staffing
12	Mind your Business	Vehicle Fleet Efficiency	Driver training and ECO driving aids	2012	Ongoing	Wirral Council	Wirral Council	N/A	N/A	N/A	Implementation	Public Engagement / Behaviour change	Number of businesses joining, record of initiatives delivered(attendees), casualty statistics	Project works with Wirral businesses to reduce the numbers of people killed or seriously injured. Education and Engagement.	
13	Merseyside Road Safety Partnership					Wirral Council / LCR								Creation of Regional Road Safety Strategy. Strategy adopted November 2022	
14	Council fleet electric vehicles and retrofitted exhausts	Promoting Low Emission Transport	Company Vehicle Procurement - Prioritising uptake of low emission vehicles			Wirral Council / Biffa	Merseytravel, OLEV	NO				Reduced vehicle emissions		Green transport review completed for Council fleet. Refuse vehicles in use are all Euro 6 standard	
15	Permitted processes	Environmental Permits	Other	2014		Wirral Council	N/A	NO				Reduced emissions		Env Health has issued and monitors 48 permits	
16	Electric vehicle charging points	Promoting Low Emission Transport	Procuring alternative Refuelling infrastructure to promote Low Emission Vehicles, EV	2016		Wirral Council, Merseytravel	OLEV	NO				Reduced vehicle emissions		53 charge points on street lighting columns within the borough and is monitoring the uptake closely. The charge points were installed in Oct 21	

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
			recharging, Gas fuel recharging											and the pilot is still ongoing.	
17	Climate Change Strategy	Policy Guidance and Development Control	Other policy	2019		Wirral Council	DFT, Energy Saving trust	NO				Reduced vehicle emissions		E-cargo bikes for internal deliveries.	
18	JSNA	Public Information	Via the Internet	2022		Wirral Public Health	N/A	N/A				Public engagement		Updated in 2022	
19	Audit of Wirral's Local Air Quality Actions	Other	Other	2019		Wirral Council	N/A	NO				Reduced vehicle emissions		Complete	
20	Go cycle	Promoting Travel Alternatives	Promotion of cycling			Merseytravel	Merseytravel	NO				Reduced vehicle emissions		Secure cycle storage offered at all but one train stations in Wirral. LCRCA have released guidance on cycle parking / cycle hubs.	
21	Highway maintenance	Transport Planning and Infrastructure	Other	N/A		Wirral Council	Dept of Transport	N/A				Reduced vehicle emissions		Ongoing maintenance to road network	
22	Parking Controls	Traffic Management	Other			Wirral Council / Merseyside Police	Wirral Council	NO						Council Enforcement Officers and CCTV vehicle enforce illegal parking, police enforce dangerous parking around schools to support active travel.	
23	School Crossing Patrols	Promoting Travel Alternatives	Promotion of walking	N/A	N/A	Wirral Council	Wirral Council	NO	N/A	N/A	Implementation	Public Engagement/ Behaviour Change	Numbers of children crossing with the patrol surveys retaken every 3 years.	SCP services is delivered across the borough and assists school/local communities to walk and scoot to school.	
24	Transport planning	Traffic Management	Anti-idling enforcement	2017		Wirral Council	N/A	NO				Reduced vehicle emissions		Adoption of powers to issue FPN's. Educational campaign launched June 2019	Soft enforcement of anti-idling.
25	Air Quality Task Force	Other	Other	2018		LCR	LCR	NO				Reduced vehicle emissions		Strategic oversight of emissions reduction measures	
26	Council workplace Transport plan	Promoting Travel Alternatives	Workplace Travel Planning	2003		Wirral Council	N/A	NO				Reduced vehicle emissions		Encourages working from home, encourages bike loan scheme and use of transport pass loan scheme. Free cycle training available for all staff. A travel plan will be developed for the new office in central Birkenhead, opening in 2024.	
27	Regional Air Quality Group	Policy Guidance and Development Control	Regional Groups Co-ordinating programmes to develop Area wide Strategies to reduce emissions and improve air quality	2002		LCR and Cheshire East and Cheshire West	N/A	NO				Reduced emissions		Ongoing	

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
28	Cross departmental Air quality Group	Other	Other	2017		Wirral Council	N/A	NO				Reduced emissions		Ongoing	
29	Wirral Clean Air Campaign	Public Information	Other	2019		Wirral Council	N/A	NO				Reduced vehicle emissions		Ongoing	
30	Taxi Licensing	Promoting Low Emission Transport	Taxi Licensing conditions	N/A		Wirral Council	N/A	NO				Reduced vehicle emissions		Taxi licensing requires 6 monthly MOT's implemented for older vehicles	
31	WOW walk to school scheme	Promoting Travel Alternatives	Promotion of walking	2019		Living streets/Wirral Council	DfT	NO			Implementation	Public engagement. Behaviour change	Increase in numbers of children walking, cycling, scooting to school.	Support 21 schools in Wirral to encourage active travel	Dependant on funding.
32	LCR Air Quality website	Public Information	Via the Internet	2019		LCR	Defra Air Quality Grant	YES				Public engagement, behaviour change		Website launched	
33	Clean Air Day 2022	Public Information	Via the Internet	2020		Wirral Council, LCR	N/A	NO				Public engagement, behaviour change		CAD 2022 focussed on schools. CAD 2023 will involve a school symposium to launch AQ projects designed by schools to increase active travel. There was also an engagement project to create a Clean Air Day Banner with a prize of £250 for the winning school.	
34	Wirral Air Quality Strategy and Action Plan	Policy Guidance and Development Control	Other policy	2023		Wirral Council, External Stakeholders		NO				Public engagement, behaviour change		Initial Engagement with external stakeholders.	
35	Transport planning	Transport Planning and Infrastructure	Other	2021		LCR	N/A	NO				Reduced vehicle emissions		The LCR Combined Authority will develop Local Transport Plan 4 (LTP4) during 2023.	
36	Transport planning	Traffic Management	Reduction of speed limits, 20mph zones	2014		Wirral Council		NO			Planning	Reduced vehicle emissions	Schemes delivered, speed monitoring	A feasibility study into introduction of 20mph speed limit implementation on all non-major residential roads including development of methodology commenced during December 2021. Traffic surveys and phase 1 of design and implementation to commence 2022 subject to member approval.	

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
37	Wirral School Streets	Promoting Travel Alternatives	Promotion of walking, cycling or scooting on the journey to/from school.	2021		Wirral Council, DfT and LCR		NO			Implementation	Reduced vehicle emissions, public engagement, behaviour change	Reduction in cars accessing the road outside the school. Ongoing monitoring of pilot schemes, modeshift from private car to alternative modes. Initiatives being completed by schools.	Three schools trialled in 2021. 6 School Street pilots in Wirral before the end of 2022. Christchuch, Liscard & Greenleas Primary School Street schemes have all been made permanent following successful experimental trial. Junior travel ambassadors scheme also focus' on active travel information from students to parents.	Each school streets trial last for 18 months.
38	Bebington Liveable Neighbourhood project	Promoting Travel Alternatives	Other	2021	2023	Wirral Council / Sustrans / Freshfield Foundation	Freshfield Foundation	NO	FUNDED		Planning	Public engagement, behaviour change		Community initiative progressing, schools have been consulted and community engagement is due to finish June 2023.	
39	Mersey Ferry's	Promoting Low Emission Transport	Public Vehicle Procurement - Prioritising uptake of low emission vehicles	2022	2027	Merseytravel, LCRCA, Wirral Council	LCRCA					Reduced vehicle emissions		New Ferry transport has been commissioned with a target date of 2027.	
40	Active Travel Strategy	Promoting Travel Alternatives	Promotion of cycling	2022		LCR / Wirral Council	SUD	NO			Planning	Reduced vehicle emissions		Includes new walking and cycling routes. SUD WP6 is due to complete in mid 2023.	Promotion of cycling, walking and public transport.
41	Project to Reduce Particulate Emissions from Domestic Burning	Public Information	Other		July 2024	NHS, Wirral Council, External Stakeholders	DEFRA AQ Grant	YES	In Progress	£171 000		Reduced PM2.5 from exposure to poor wood burning practices.	Public engagement, behaviour change	Planning Stages	
42	School Air Quality Project	Promoting Travel Alternatives	Promotion of walking, cycling or scooting on the journey to/from school.	2023		Wirral Council, External Stakeholders								Ongoing subject to review in September 2023.	
43	Wirral Road Safety Plan	Traffic Management	Other	2022		Wirral Council								Further Improvements to Road Safety in Wirral.	
44	Air Pollution Monitoring	Other	Other			Wirral Council	N/A	NO				Monitoring		Total 56 passive diffusion tube monitoring sites and 2 AURN's located in Wirral for 2022.	

$PM_{2.5}$ – 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.

Wirral Council is mindful of the issues associated with $PM_{2.5}$ and accepts its responsibility for reducing $PM_{2.5}$ in the borough and will work towards reducing emissions and concentrations of $PM_{2.5}$ in the local area, as far as reasonably practicable. Although national data is available, Wirral predominately makes use of the borough's AURN monitoring station, which is in Tranmere, to base their decisions on the role the Council will take in reducing $PM_{2.5}$ emissions. In line with Chapter 7 of PG(16) decisions are based on the local need and priorities.

The Public Health Outcome Framework (PHOF) identifies the life expectancy within Wirral to be worse than the benchmark for England, however when using the PHOF to refer to the average fraction of mortality attributable to particulate air pollution, Wirral is below the England average. The most up to date figures (2021) show that the England average is 5.5%, the Northwest being 5.3% and Wirral being 4.9%. The data obtained from the Tranmere AURN in relation to $PM_{2.5}$ demonstrates that the 2020 concentration of $PM_{2.5}$ was 7µg/m^3, below the Target Value of 10µg/m^3. It is above the World Health Organisation guideline level of 5µg/m^3.

The Environmental Targets (Fine Particulate Matter) (England) Regulations 2023 have also set out, requiring that there is at least a 35% reduction in population exposure by the end of 31st December 2040, with a baseline of 2018 levels. In addition, the new National Air Quality Strategy which has recently been sent out for consultation, includes an interim target of 22% reduction in exposure compared to 2018 by 2028, again with a baseline of 2018.

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

- **Air Quality Strategy**. The Council is currently in the process of producing an Air Quality Strategy for Wirral.
- **Air Quality Action Plan**. This will be produced to support achieving the aims of the Air Quality strategy.
- **Reducing Particulate Emissions from Domestic Burning**. Wirral Council has obtained funding from DEFRA to support a project to improve air quality by reducing particulate emissions from domestic burning at source, targeted mainly at wood burning stoves but also considering other domestic burning. It will ensure we are working towards meeting the targets for $PM_{2.5}$ set out in The Environmental Targets (Fine Particulate Matter) (England) Regulations 2023.

  The project has two main objectives, to reduce particulate matter from domestic burning at source through an information and education campaign and to provide residents with the knowledge to protect themselves from air pollution through delivery of an information and awareness campaign delivered in community and public health settings.
- **Smoke Control Areas**. Numerous areas within Wirral have been designated as Smoke control areas, where smoke may not be emitted from a chimney unless an authorised fuel or 'exempt appliances' is being used. The burning of coal or wood in an ordinary residential fireplace, in these areas is not permitted. As the emissions from the combustion of coal and wood include $PM_{2.5}$'s, the designation of these smoke control areas helps to reduce the release of $PM_{2.5}$'s. Environmental Health ensure that relevant environmental legislation is enforced including the enforcement of smoke control areas. Following the changes to the Clean Air Act 1993, implemented by the Environment Act 2021, Local Authorities are now able to issue fixed penalty notices for the emission of smoke in smoke control areas in England. Wirral Council will provide advise to members of the public regarding smoke control areas and emissions of smoke from chimneys. Enforcement of the laws covering smoke emissions in a smoke control area will be taken where it is deemed appropriate.
- **Permitted Processes**. Environmental Health ensure that relevant environmental legislation is enforced including the enforcement of smoke control areas, Environmental Permitting legislation and statutory nuisance legislation (i.e. smoke from bonfires).

- **Highways maintenance**. This plays an important role in reducing both exhaust and non-exhaust sources of pollution. Wirral Council is responsible for approximately 737 miles of road throughout the borough. Every road in Wirral is inspected each year to identify which roads and pavements need most maintenance, based on structural need and priority. We also respond to public reports and any accident risk or occurrence. Busy town centres are inspected once a month, but quiet cul-de-sacs only once a year.

  The roads to be repaired are chosen after an extensive process of prioritisation. This includes surveys and reports from highways inspectors, councillors, and members of the public. As part of the programme of works, we also undertake the refurbishment of pavements around the borough.

- **Highways Improvements**. Ongoing improvement work to the highways in Wirral, including junction improvements help to reduce the amount of traffic idling in sensitive residential areas and thereby reducing the impact on air quality.

- **Planning Processes**. Environmental Health will continue to advise on planning applications to help limit any adverse effect on air quality from proposed developments. Environmental Health, in which the main function of Local Air Quality Management sits, works closely with its Public Health teams and is represented at the Wirral Health Protection Board by the Environmental Health senior manager. Local Air Quality Management also forms part of the Joint Strategy Needs Assessment, which aims to describe the health implications of poor air quality in Wirral.

- **Wirral Air Quality Steering Group**. This group has representatives from several departments including Environmental Health, Public Health, Transport, Licensing and Forward Planning. The group aims to meet three times per year and co-ordinate the Council's obligation to manage air quality. The group meets four times a year and is currently overseeing the production of Wirral's Air Quality Strategy.

- **Monitoring health outcomes**. This is important to assess the health impact of air quality, particularly amongst individuals with pre-existing cardiovascular or respiratory illness, those living and working near main roads and those living in more deprived areas. The Wirral Council's Joint Strategic Needs Assessment (JSNA) on outdoor air quality provides a summary of key pollutants, the impact on health and priority actions in Wirral. The Air Quality JSNA was updated in 2022.

- **Working with External Partners**. The Council will also work with UKHSA and neighbouring councils to optimise opportunities, and develop interventions, to improve air quality.
- **Air Quality Monitoring**. The Council will undertake proactive air quality management, as part of the development of the Local Plan. An air quality assessment of particulate matter (PM_{10} and $PM_{2.5}$) and nitrogen dioxide (NO_2) from the transport network, has previously been undertaken to support the Local Plan.

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

This section sets out the monitoring undertaken within 2022 by Wirral 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.

Summary of Monitoring Undertaken

3.1.1 Automatic Monitoring Sites

Wirral Council undertook automatic (continuous) monitoring at two 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 automatic monitoring results for Wirral Council are 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

Wirral Council undertook non- automatic (i.e. passive) monitoring of NO_2 at fifty-six 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.

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.

3.1.3 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.

The conclusion drawn from the monitoring results for Wirral for 2022 are that no exceedances of the air quality objectives, relating to both the annual mean and 1-hour objectives have been identified. The results of passive tube monitoring have been taken into consideration for the 1-hour objectives and as no sites have annual means greater than 60µg/m^3 it is likely that there are no exceedances of the 1-hour objective at these sites. There are currently no AQMA's declared in Wirral and no AQMA's will be declared this year.

In 2022, fifty three existing monitoring sites were retained, two existing monitoring sites were removed and three new sites were introduced. Therefore, the total number of passive diffusion tube monitoring sites located in Wirral for 2022 is fifty-six. It is recognised that there is a need to closely monitor air quality in the borough and utilise all opportunities to improve air quality. A further review will be undertaken in 2023.

There are fifty-three passive monitoring sites that have been in use between 2021 and 2022 and comparison results are available at forty-four of these sites. Fifteen sites (34%) showed increased concentrations of Nitrogen Dioxide. Twenty-nine sites (66%) have shown a reduction in concentrations, although it is noted that some of these reductions are very small. The sites with the smallest reduction in concentrations are W15. W26/19, W33/19 and W34/19 with a 0.1µg/m^3 reduction in Nitrogen Dioxide concentrations. The site with the largest reduction was W45 with a 4.4µg/m^3 decrease. It has not been possible to undertake

a comparison of Nitrogen Dioxide levels between 2021 and 2022 at twelve sites, as the required data is not available. There have been no exceedances of the national objective for Nitrogen Dioxide indicated by this passive monitoring during 2022.

Where relevant, consider annual means greater than 60µg/m^3, which indicates that an exceedance of the 1-hour mean objective is also likely at these sites.

3.1.4 Table 3.1 - Percentage reduction of Nitrogen Dioxide Levels at Passive Monitoring Sites Between 2021 – 22

Site	2021 NO2 Monitoring Result	2022 NO2 Monitoring Result	Increase / Decrease between 2021-22	Difference (µg/m^3)
W2	15.1	14.71	Decrease	-0.4
W3/19	24	21.4	Decrease	-2.5
W4	25.1	24.3	Decrease	-0.8
W5	27.5	28.3	Increase	+0.8
W8	23.7	25.3	Increase	+1.6
W9	18.8	19.2	Increase	+0.4
W12	36.5	35.6	Decrease	-0.9
W13	17.8	17.3	Decrease	-0.5
W14/21	20.5	21.3	Increase	+0.8
W15	24.6	24.5	Decrease	-0.1
W17	28.8	27.2	Decrease	-1.6
W18/19	29.2	28.5	Decrease	-0.7
W21	27.2	24	Decrease	-3.2
W23	23.4	23.1	Decrease	-0.3
W24	26.3	24.2	Decrease	-2.1
W25	23.1	22.5	Decrease	-0.6
W26/19	15.5	15.4	Decrease	-0.1
W27	23.4	20.2	Decrease	-3.2
W28	21.8	21.2	Decrease	-0.6
W29/20	18.3	18.8	Increase	+0.5
W30/20	12	11.2	Decrease	-0.8
W31	31.5	30.7	Decrease	-0.8
W32	18.4	18	Decrease	-0.4
W33/19	23.4	23.3	Decrease	-0.1
W34/19	20.9	20.8	Decrease	-0.1
W35	20.3	19.1	Decrease	-1.2
W36/21	21.4	23.1	Increase	+1.7
W37	23.5	22.9	Decrease	-0.6
W38/19	21.7	22.1	Increase	+0.4
W39	24.2	25	Increase	+0.8
W40	23.7	22.2	Decrease	-1.5
W41	14.3	15.2	Increase	+0.9
W42	20.6	19.9	Decrease	-0.7

W43	22.3	21.8	Decrease	-0.5
W44	11.7	11.4	Decrease	-0.3
W45	36.8	32.4	Decrease	-4.4
W48	23.1	27.4	Increase	+4.3
W49	17.9	20.4	Increase	+2.5
W50	26.0	25.6	Decrease	-0.4
W54	10.0	8.2	Decrease	-1.8
W56	10.6	11.7	Increase	+1.1
W57	10.1	10.7	Increase	+0.6
W58	10.5	11.5	Increase	+1
W61	11.9	13.9	Increase	+2

When looking at longer term trends, there are 20 passive monitoring sites where long-term monitoring data is available. Despite some small increases at some sites, between the monitoring periods of 2021 and 2022, the latest monitoring results indicate that there has been a reduction in Nitrogen Dioxide concentrations in the last five years (2018 and 2022) at all 20 sites where long-term data is available. Long term data comparison is not available at all other sites, as these sites were either newly introduced after 2018 or deleted prior to 2022. Site W37, located at Corporation Road, Birkenhead has seen the highest reduction in Nitrogen Dioxide concentrations, whilst site W29/20, Mill Lane, Poulton has seen the lowest reduction in concentrations.

3.1.5 Table 3.2 - Percentage reduction of Nitrogen Dioxide Levels at Passive Monitoring Sites Between 2018 – 22

Site	2018 NO2 Result	2022 N02 Result	Change 2018-2022	Increase / decrease (µg/m^3)
W2	20	14.7	5.3	Decrease
W4	30	21.4	8.6	Decrease
W5	32	28.3	3.7	Decrease
W8	29	25.3	3.7	Decrease
W9	24	19.2	4.8	Decrease
W12	38	35.6	2.4	Decrease
W13	23	17.3	5.7	Decrease
W15	27	24.5	2.5	Decrease
W17	32	27.2	4.8	Decrease
W21	31	24	7	Decrease
W23	26	23.1	2.9	Decrease
W24	31	24.2	6.8	Decrease
W25	31	22.5	8.5	Decrease
W27	25	20.2	4.8	Decrease
W28	27	21.2	5.8	Decrease
W29/20	19	18.8	0.2	Decrease

W31	37	30.7	6.3	Decrease
W32	23	18	5	Decrease
W35	27	19.1	7.9	Decrease
W37	32	22.9	9.9	Decrease
CM1	18	13.4	4.6	Decrease
CM2	24	16.8	7.2	Decrease

The data obtained from the two AURN's located in Wirral shows that there has been an increase in Nitrogen Dioxide levels from 2021 to 2022 at Tranmere AURN (0.8 µg/m^3 increase) but a longer-term reduction in annual mean concentrations of Nitrogen Dioxide in the last 5 years (2018 to 2022) of 4.6 µg/m^3 decrease. The data shows that there has been a decrease in Nitrogen Dioxide levels from 2020 to 2021 at Birkenhead AURN (1.5 µg/m^3 decrease) and a longer-term reduction in annual mean concentrations of Nitrogen Dioxide in the last 5 years (2018 to 2022) of 6.2µg/m^3 decrease.

3.1.6 Particulate Matter ($PM_{2.5}$)

Table A.6 in Appendix A presents the ratified and adjusted monitored $PM_{2.5}$ annual mean concentrations for the past five years.

$PM_{2.5}$ is monitored by the AURN station located in Tranmere. This AURN is used to monitor background levels. Throughout 2022 there was an exposure reduction approach for $PM_{2.5}$, with a national objective annual mean of 10µg/m^3. The AURN results show that over the last 5 years, levels of $PM_{2.5}$ have remained generally the same, with the annual mean result for 2022 of 8µg/m^3, which is below the National Objective level of 10µg/m3. The results however show that $PM_{2.5}$ levels are above the new World Health Organisation Air Quality Guideline level of 5µg/m^3.

The AURN data for PM2.5 has demonstrated that background levels have generally stayed the same between 2018 – 2022, with no change in levels monitored, when comparing results in 2018 (8µg/m^3) to 2022 (8µg/m^3).

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)
CM1	Wirral Tranmere	Urban Background	332054	386711	03; NO2; PM2.5;	NO	Chemiluminescent; FDMS	68.6	50	3
CM2	Birkenhead Borough Road	Urban Traffic	331931	388466	NO2	NO	Chemiluminescent	14	13.4	1.5

Notes:

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

(2) N/A if not applicable

Table A.2 – 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)
W02	New Chester Road, Eastham	Roadside	335887	379797	NO2	N/A	0.0	12.8	No	2.0
W03/19	Leasowe Road, Wallasey	Kerbside	329070	392309	NO2	N/A	5.5	0.5	No	2.3
W04	Borough Road, Tranmere	Roadside	331322	387414	NO2	N/A	9.6	2.6	No	2.5
W05	Bolton Road East, New Ferry	Roadside	334128	384634	NO2	N/A	12.5	4.3	No	2.2
W08	Hoylake Road, Moreton	Kerbside	326243	389946	NO2	N/A	1.5	0.5	No	2.2
W09	Woodchurch Road, Prenton	Roadside	329257	386448	NO2	N/A	0.0	18.0	No	2.0
W12	New Chester Road, New Ferry	Kerbside	334061	384617	NO2	N/A	9.4	1.0	No	2.2
W13	New Chester Road, New Ferry	Roadside	334113	384588	NO2	N/A	0.0	9.3	No	2.0
W14/21	Wallasey Road, Liscard	Kerbside	330462	391907	NO2	N/A	2.1	1.0	No	2.7
W15	Arrowe Park Road, Woodchurch	Roadside	327625	386340	NO2	N/A	1.5	2.1	No	2.4
W17	St Albans Road, Liscard	Kerbside	330646	391805	NO2	N/A	30.0	0.3	No	2.1
W18/19	New Chester Road, New Ferry	Roadside	334097	384546	NO2	N/A	5.0	4.9	No	2.4

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)
W21	Singleton Avenue, Tranmere	Roadside	331034	387019	NO2	N/A	3.6	1.7	No	2.6
W22/22	Norwood Road, Poulton	Roadside	330729	390758	NO2	N/A	0.0	8.7	No	2.1
W23	Cleveland street, Birkenhead	Roadside	332385	389154	NO2	N/A	7.6	1.1	No	2.3
W24	Conway Street, Birkenhead	Roadside	332231	388723	NO2	N/A	N/A	2.0	No	2.3
W25	Dock Road, Seacombe	Roadside	331756	390332	NO2	N/A	13.3	1.8	No	2.3
W26/19	Allport Lane, Bromborough	Roadside	335053	381295	NO2	N/A	0.0	13.9	No	2.0
W27	New Chester Road, New Ferry	Roadside	334194	384348	NO2	N/A	7.6	3.5	No	2.1
W28	Church Road, Bebington	Roadside	333223	383277	NO2	N/A	6.4	2.6	No	2.1
W29/20	Mill Lane, Poulton	Roadside	330209	391139	NO2	N/A	0.0	11.8	No	1.7
W30/20	Meols Drive, Hoylake	Roadside	321560	388824	NO2	N/A	7.3	2.2	No	2.3
W31	Canning St, Birkenhead	Roadside	332423	389398	NO2	N/A	7.5	1.9	No	2.2
W32	Telegraph Road, Heswall	Roadside	327174	381630	NO2	N/A	1.0	2.3	No	2.1
W33/19	Storeton Road, Prenton	Kerbside	330921	386652	NO2	N/A	7.8	0.7	No	2.4

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)
W34/19	New Chester Road, New Ferry	Roadside	334096	384535	NO2	N/A	0.0	9.5	No	2.0
W35	Vernon Road, Poulton	Kerbside	331716	390696	NO2	N/A	5.5	0.5	No	2.5
W36/21	Geneva Road, Poulton	Kerbside	331843	390812	NO2	N/A	4.7	0.5	No	2.7
W37	Corporation Rd, Birkenhead	Roadside	331529	389762	NO2	N/A	N/A	1.8	No	2.1
W38/19	Mount Road, Higher Bebington	Roadside	331481	384564	NO2	N/A	0.0	6.0	No	2.0
W39/21	Chester Street, Birkenhead	Kerbside	332711	388856	NO2	N/A	3.7	0.5	No	2.5
W40	Barnston Rd, Pensby	Kerbside	328040	383300	NO2	N/A	10.9	1.0	No	2.5
W41	St Georges Road, Wallasey Village.	Roadside	329487	392312	NO2	N/A	6.7	4.4	No	2.7
W42	New Chester Rd, Bromborough	Roadside	334888	382627	NO2	N/A	8.3	2.5	No	2.7
W43	Whetstone Lane, B/head	Roadside	331607	388353	NO2	N/A	2.6	1.8	No	2.7
W44	Banks Rd, West Kirby	Kerbside	321311	386666	NO2	N/A	15.7	0.4	No	2.3
W45	Arrowe Park Rd, Upton	Kerbside	327155	387140	NO2	N/A	2.6	0.8	No	2.4
W47	Bridle Road, Eastham	Roadside	335784	380076	NO2	N/A	15.9	1.3	No	2.3

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)
W47/22	Bridle Road, Eastham	Roadside	335767	380068	NO2	N/A	0.0	18.4	No	2.0
W48	Wheatland Lane, Seacombe	Roadside	331878	390822	NO2	N/A	5.8	2.7	No	2.4
W49	Cross Street, Birkenhead	Kerbside	332627	388749	NO2	N/A	1.7	0.4	No	2.4
W50	Parry Street, Seacombe	Roadside	331928	390767	NO2	N/A	4.3	1.5	No	2.2
W51	Christchurch Primary School Mount Grove	Roadside	331301	388040	NO2	N/A	30.2	2.6	No	2.4
W52	Christchurch Primary School Batten Road	Roadside	331337	387973	NO2	N/A	4.2	2.9	No	2.1
W53	Raeburn Primary School Moreland Avenue	Roadside	334697	380863	NO2	N/A	14.3	4.9	No	2.3
W54	Raeburn Primary School Moreland Avenue	Roadside	334794	380852	NO2	N/A	14.3	4.9	No	2.1
W55	Brackenwood Junior School Norbury Avenue	Roadside	332488	384189	NO2	N/A	8.0	1.6	No	2.1
W56	Brackenwood Junior School Norbury Avenue	Roadside	332471	384120	NO2	N/A	8.4	1.7	No	1.9
W57	Brackenwood Infants School	Kerbside	332620	384345	NO2	N/A	50.0	0.6	No	2.1

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)
W58	Brackenwood Infants School Acreville Road	Roadside	332689	384332	NO2	N/A	16.1	2.6	No	2.2
W59	Rockferry Primary School Lees Ave	Kerbside	332854	386834	NO2	N/A	23.2	0.3	No	2.3
W60	Rockferry Primary School Ionic Street	Roadside	332894	386792	NO2	N/A	0.0	1.7	No	2.3
W61	Greenleas Primary School Green Lane	Kerbside	328527	392568	NO2	N/A	23.8	0.8	No	2.2
W62	Greenleas Primary School Greenleas Road	Kerbside	328587	392536	NO2	N/A	9.7	0.7	No	2.2
W63	Liscard Primary School Manor Lane	Kerbside	331202	392366	NO2	N/A	7.7	0.5	No	2.3
W64	Liscard Primary School Withens Lane	Roadside	331031	392396	NO2	N/A	109.2	2.1	No	2.2
W65	Wirral Met College, Tower Road	Roadside	332170	389843	NO2	N/A	14.2	1.9	No	2.4

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
CM1	332054	386711	Urban Background	100%	98%	18	16	9.6	12.6	13.4
CM2	331931	388466	Urban Traffic	100%	91%	24	23	13.1	18.3	16.8

☒ **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
W02	335887	379797	Roadside	100%	92.3	20.0	18.0	14.3	15.1	14.7
W03/19	329070	392309	Kerbside	100%	100.0	x	26.0	22.7	24.0	21.4
W04	331322	387414	Roadside	100%	92.3	30.0	29.0	25.3	25.1	24.3
W05	334128	384634	Roadside	100%	92.3	32.0	33.0	26.8	27.5	28.3
W08	326243	389946	Kerbside	100%	90.4	29.0	29.0	23.5	23.7	25.3
W09	329257	386448	Roadside	100%	100.0	24.0	20.0	19.0	18.8	19.2
W12	334061	384617	Kerbside	100%	100.0	38.0	39.0	32.7	36.5	35.6
W13	334113	384588	Roadside	100%	100.0	23.0	21.0	17.1	17.8	17.3
W14/21	330462	391907	Kerbside	100%	100.0	x	x	x	20.5	21.3
W15	327625	386340	Roadside	100%	100.0	27.0	27.0	22.5	24.6	24.5
W17	330646	391805	Kerbside	100%	82.7	32.0	34.0	26.4	28.8	27.2
W18/19	334097	384546	Roadside	100%	100.0	x	33.0	26.6	29.2	28.5
W21	331034	387019	Roadside	100%	100.0	31.0	29.0	22.8	27.2	24.0

Diffusion Tube ID	X OS Grid Ref (Easting)	Y OS Grid Ref (Northing)	Site Type	Valid Data Capture for Monitoring Period (%) (1)	Valid Data Capture 2022 (%) (2)	2018	2019	2020	2021	2022
W22/22	330729	390758	Roadside	57.7	57.7	x	x	x	x	17.2
W23	332385	389154	Roadside	75	75.0	26.0	27.0	18.1	23.4	23.1
W24	332231	388723	Roadside	92.3	92.3	31.0	28.0	23.0	26.3	24.2
W25	331756	390332	Roadside	92.3	92.3	31.0	27.0	18.8	23.1	22.5
W26/19	335053	381295	Roadside	100	100.0	x	19.0	15.1	15.5	15.4
W27	334194	384348	Roadside	92.3	92.3	25.0	26.0	17.2	23.4	20.2
W28	333223	383277	Roadside	100	100.0	27.0	25.0	20.5	21.8	21.2
W29/20	330209	391139	Kerbside	90.4	90.4	19.0	21.0	15.4	18.3	18.8
W30/20	321560	388824	Roadside	82.7	82.7	x	x	10.4	12.0	11.2
W31	332423	389398	Roadside	75	75.0	37.0	35.0	27.7	31.5	30.7
W32	327174	381630	Roadside	92.3	92.3	23.0	21.0	14.4	18.4	18.0
W33/19	330921	386652	Kerbside	100	100.0	x	28.0	23.5	23.4	23.3
W34/19	334096	384535	Roadside	92.3	92.3	x	24.0	20.9	20.9	20.8
W35	331716	390696	Kerbside	67.3	67.3	27.0	26.0	21.4	20.3	19.1

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
W36/21	331843	390812	Kerbside	100	100.0	x	x	x	21.4	23.1
W37	331529	389762	Roadside	100	100.0	32.0	25.0	24.2	23.5	22.9
W38/19	331481	384564	Roadside	100	100.0	x	26.0	14.0	21.7	22.1
W39/21	332711	388856	Kerbside	92.3	92.3	x	x	x	24.2	25.0
W40	328040	383300	Kerbside	82.7	82.7	x	x	22.5	23.7	22.2
W41	329487	392312	Roadside	82.7	82.7	x	x	11.5	14.3	15.2
W42	334888	382627	Roadside	84.6	84.6	x	x	19.1	20.6	19.9
W43	331607	388353	Roadside	100	100.0	x	x	21.5	22.3	21.8
W44	321311	386666	Kerbside	92.3	92.3	x	x	11.1	11.7	11.4
W45	327155	387140	Kerbside	90.4	90.4	x	x	34.0	36.8	32.4
W47	335784	380076	Roadside	75	25.0	x	x	x	x	17.9
W47/22	335767	380068	Roadside	92.3	40.4	x	x	x	x	11.0
W48	331878	390822	Roadside	100	100.0	x	x	x	23.1	27.4
W49	332627	388749	Kerbside	100	100.0	x	x	x	17.9	20.4

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
W50	331928	390767	Roadside	100	100.0	x	x	x	26.0	25.6
W51	331301	388040	Roadside	90.4	90.4	x	x	x	x	13.3
W52	331337	387973	Roadside	67.3	67.3	x	x	x	x	13.0
W53	334697	380863	Roadside	100	100.0	x	x	x	x	11.0
W54	334794	380852	Roadside	67.3	67.3	x	x	x	10.0	8.2
W55	332488	384189	Roadside	90.4	90.4	x	x	x	x	11.8
W56	332471	384120	Roadside	82.7	82.7	x	x	x	10.6	11.7
W57	332620	384345	Kerbside	100	100.0	x	x	x	10.1	10.7
W58	332689	384332	Roadside	100	100.0	x	x	x	10.5	11.5
W59	332854	386834	Kerbside	65.4	65.4	x	x	x	x	13.0
W60	332894	386792	Roadside	51.9	51.9	x	x	x	x	12.9
W61	328527	392568	Kerbside	92.3	92.3	x	x	x	11.9	13.9
W62	328587	392536	Kerbside	100	100.0	x	x	x	x	14.1
W63	331202	392366	Kerbside	84.6	84.6	x	x	x	x	16.6

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
W64	331031	392396	Roadside	92.3	92.3	x	x	x	x	15.6
W65	332170	389843	Roadside	75	75.0	x	x	x	x	22.6

☒ **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

Figure A.1 shows the annual mean concentration levels of NO2 compared with the AQS Objective limit of 40ug/m3 at all active monitoring diffusion tube monitoring locations in 2022.

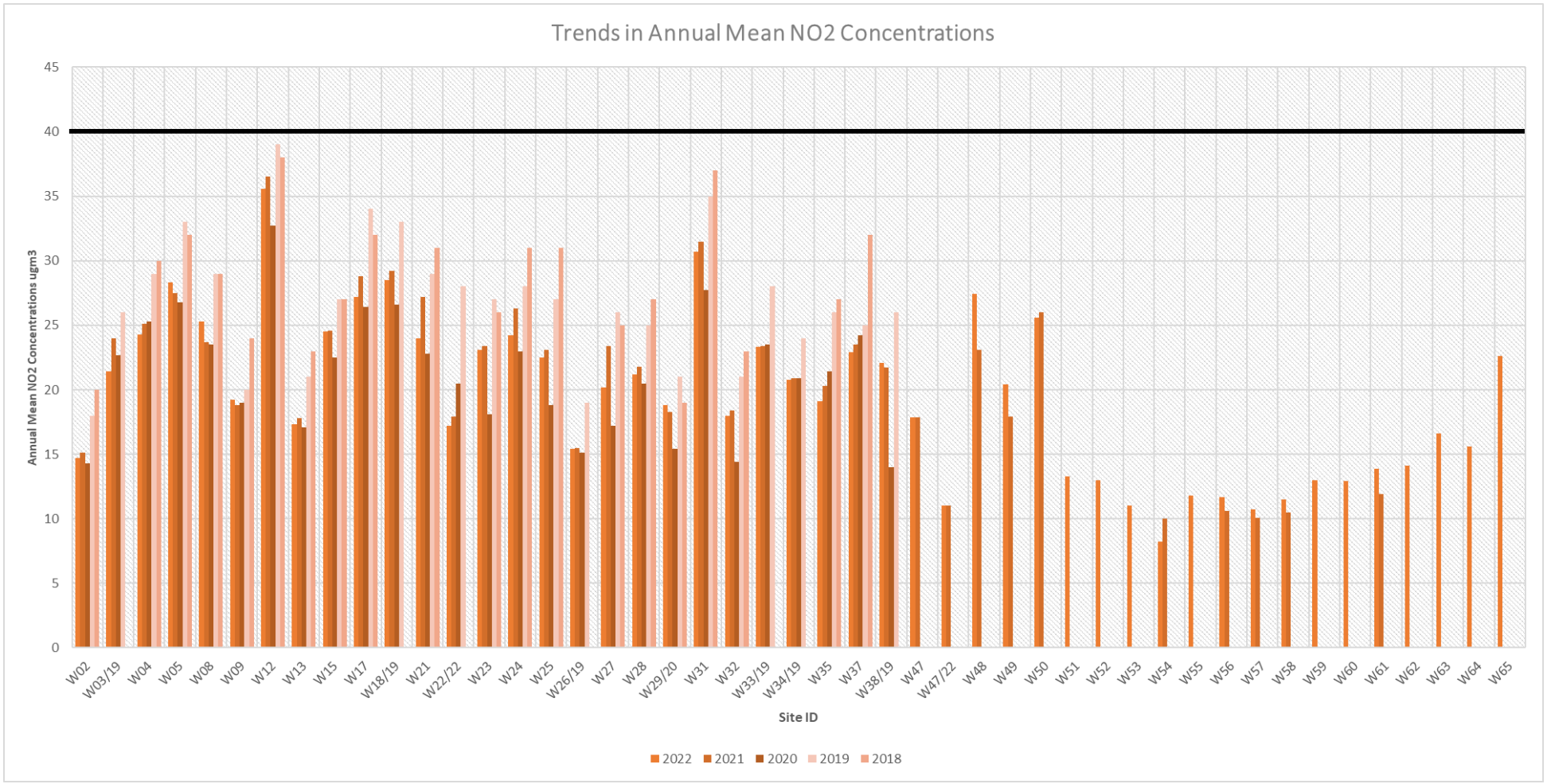


Table A.5 – 1-Hour Mean NO_2 Monitoring Results, Number of 1-Hour Means > 200µg/m^3

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
CM1	332054	386711	Urban Background	100%	98%	0	0	0	0	0
CM2	331931	388466	Urban Traffic	100%	91%	**0(100)**	0	0	0	0

Notes:

The annual mean concentrations are presented as µg/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%).

Table A.6 – 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
CM1	332395	433175	Urban Background	100%	98.3%	8	8	7	7	8

☐ **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.2 – Trends in Annual Mean $PM_{2.5}$ Concentrations

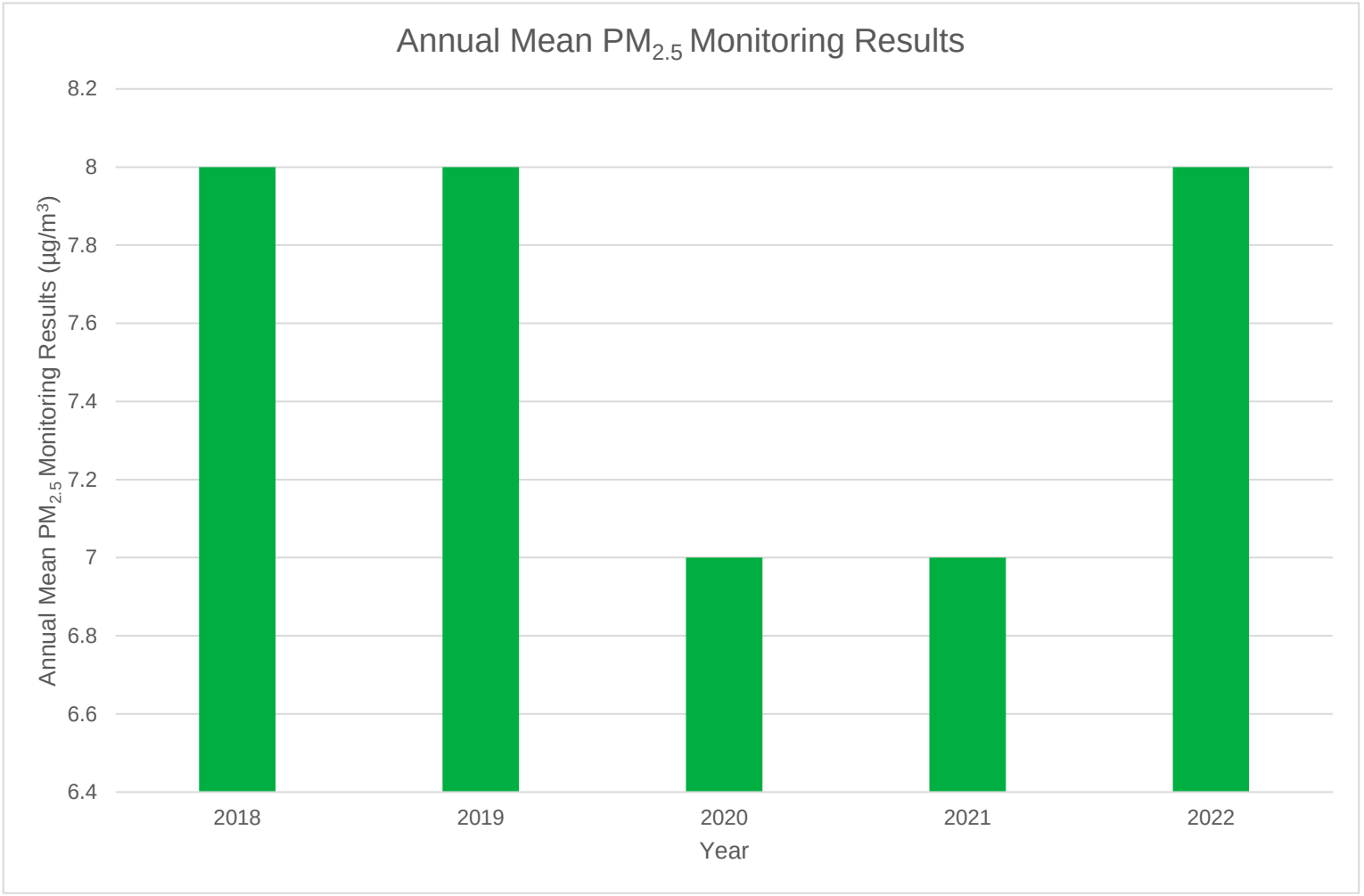


Figure A.5 shows that $PM_{2.5}$ levels have returned to pre-pandemic levels in 2022. An increase from 7ug/m^3 to 8ug/m^3.

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 <(7.6)>	Annual Mean: Distance Corrected to Nearest Exposure	Comment
W02	335887	379797	23.2	11.8	29.5	21.9	14.1	12.0	x	20.8	20.0	16.5	18.5	24.6	19.4	14.7	-	
W03/19	329070	392309	**45.1**	29.9	**40.7**	27.1	21.0	19.8	21.9	23.2	26.6	29.5	18.2	34.9	28.2	21.4	-	
W04	331322	387414	x	30.7	39.8	32.6	27.0	23.1	25.3	29.4	32.1	32.7	29.6	**49.0**	31.9	24.3	-	
W05	334128	384634	**52.4**	x	**42.2**	26.5	29.8	29.7	32.5	35.0	39.9	35.4	37.8	**48.9**	37.3	28.3	-	
W08	326243	389946	**40.5**	32.3	**42.5**	x	26.3	25.1	27.5	27.0	29.1	32.7	**40.2**	**42.6**	33.3	25.3	-	
W09	329257	386448	35.3	21.2	34.7	35.8	16.4	14.7	16.3	19.8	27.3	19.3	27.2	35.3	25.3	19.2	-	
W12	334061	384617	**60.2**	**42.5**	**63.9**	**46.4**	37.9	38.7	**41.5**	**45.5**	**44.7**	**56.6**	21.0	**62.9**	**46.8**	35.6	-	
W13	334113	384588	29.1	19.5	31.0	23.2	18.7	17.3	19.4	22.1	20.8	21.3	22.8	28.5	22.8	17.3	-	
W14/21	330462	391907	**41.3**	26.3	**40.3**	30.5	21.4	19.0	21.2	20.6	23.5	30.2	19.4	**43.1**	28.1	21.3	-	
W15	327625	386340	35.9	31.1	38.7	30.2	30.8	27.0	30.4	30.2	31.8	32.0	31.3	37.5	32.2	24.5	-	
W17	330646	391805	x	31.5	**55.3**	x	28.6	24.4	29.1	30.8	34.3	36.8	36.1	**50.8**	35.8	27.2	-	
W18/19	334097	384546	**45.7**	32.4	**48.2**	37.9	29.5	29.9	32.8	37.9	39.9	37.7	27.3	**50.6**	37.5	28.5	-	
W21	331034	387019	39.6	29.7	**42.7**	34.4	27.9	23.7	25.4	25.0	30.2	36.8	9.4	**54.1**	31.6	24.0	-	
W22/22	330729	390758	32.4	19.5	34.5	21.0	15.3	13.2	18.0	x	x	x	x	x	22.0	17.2	-	
W23	332385	389154	x	x	**49.4**	x	18.4	19.2	21.6	23.0	23.8	36.7	36.1	**44.8**	30.3	23.1	-	
W24	332231	388723	x	25.7	**49.0**	36.0	27.2	24.0	24.7	26.1	29.0	32.5	34.0	**42.5**	31.9	24.2	-	
W25	331756	390332	38.9	x	**44.7**	27.7	20.5	18.2	21.6	22.3	25.3	34.6	29.4	**41.8**	29.5	22.5	-	
W26/19	335053	381295	28.3	18.0	26.6	17.0	17.2	15.6	16.8	16.6	16.9	23.6	15.9	30.6	20.3	15.4	-	
W27	334194	384348	x	17.3	**41.0**	29.3	17.3	19.4	23.6	25.7	32.0	24.5	32.0	30.8	26.6	20.2	-	
W28	333223	383277	35.1	25.0	39.6	27.3	21.6	19.7	19.5	23.5	24.9	27.9	29.1	**42.2**	28.0	21.2	-	
W29/20	330209	391139	31.0	20.4	37.5	x	19.1	15.2	20.0	20.4	18.8	26.9	28.2	34.1	24.7	18.8	-	
W30/20	321560	388824	22.6	11.2	23.8	16.8	10.7	9.0	11.1	14.2	12.1	15.4	x	x	14.7	11.2	-	
W31	332423	389398	x	38.6	x	x	34.0	34.8	37.4	**40.6**	39.2	**40.7**	**42.8**	**54.9**	**40.3**	30.7	-	
W32	327174	381630	29.4	x	31.4	21.2	19.1	16.7	18.6	20.7	20.2	22.7	26.6	33.3	23.6	18.0	-	
W33/19	330921	386652	35.5	27.5	**44.2**	27.8	24.3	17.7	25.0	28.3	31.7	31.2	29.9	45.3	30.7	23.3	-	
W34/19	334096	384535	38.0	27.4	34.7	26.4	22.5	20.4	23.2	25.0	23.1	23.5	x	36.2	27.3	20.8	-	

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 <(7.6)>	Annual Mean: Distance Corrected to Nearest Exposure	Comment
W35	331716	390696	36.7	21.7	38.5	26.7	20.1	17.5	20.4	x	x	x	x	38.2	27.5	19.1	-	
W36/21	331843	390812	39.1	24.9	**47.6**	29.4	22.9	19.1	25.4	26.8	25.9	32.8	33.4	37.2	30.4	23.1	-	
W37	331529	389762	**41.7**	23.4	**40.8**	29.0	24.6	21.2	25.9	26.6	27.8	30.1	32.7	38.2	30.2	22.9	-	
W38/19	331481	384564	34.1	23.9	37.0	25.2	27.2	23.9	26.5	28.6	23.7	28.6	30.4	39.3	29.0	22.1	-	
W39/21	332711	388856	**41.4**	x	39.0	26.0	23.6	24.4	23.7	27.1	29.2	37.4	**40.4**	**49.5**	32.9	25.0	-	
W40	328040	383300	36.9	23.3	**40.2**	32.2	26.2	23.2	25.7	29.3	30.3	25.2	x	x	29.3	22.2	-	
W41	329487	392312	25.5	x	34.1	19.0	10.7	8.6	13.2	14.0	13.4	x	31.1	30.7	20.0	15.2	-	
W42	334888	382627	34.3	x	37.4	28.2	15.5	17.1	21.0	26.1	23.7	22.7	x	35.9	26.2	19.9	-	
W43	331607	388353	33.9	23.3	37.4	29.9	23.8	21.2	23.3	25.1	26.9	30.0	31.3	38.7	28.7	21.8	-	
W44	321311	386666	18.3	11.4	19.0	15.1	12.1	10.6	14.0	15.1	14.1	13.3	x	22.2	15.0	11.4	-	
W45	327155	387140	**46.9**	37.9	**46.9**	x	37.4	35.9	30.4	**42.4**	**44.6**	**43.6**	**48.1**	**55.5**	**42.7**	32.4	-	
W47	335784	380076	31.9	x	x	32.0	x	10.1	x	x	x	x	x	x	24.7	17.9	-	
W47/22	335767	380068	x	x	x	x	x	x	12.9	14.7	16.8	x	8.5	29.4	16.5	11.0	-	
W48	331878	390822	**41.0**	30.5	**53.3**	34.0	27.5	24.5	29.8	29.4	32.8	**44.0**	38.0	**48.2**	36.1	27.4	-	
W49	332627	388749	34.6	21.9	**45.2**	19.8	17.4	18.4	20.7	23.3	23.8	33.6	25.1	38.4	26.9	20.4	-	
W50	331928	390767	39.7	28.6	**42.7**	29.9	26.4	27.9	32.6	37.0	32.2	30.3	36.9	**40.7**	33.7	25.6	-	
W51	331301	388040	25.3	15.0	27.9	18.8	12.1	10.1	11.4	15.3	16.3	16.8	23.0	x	17.5	13.3	-	
W52	331337	387973	x	x	x	x	10.6	8.6	11.3	15.7	16.4	17.8	20.2	33.1	16.7	13.0	-	
W53	334697	380863	22.7	12.3	22.7	13.7	8.5	7.7	10.2	13.8	12.3	13.3	11.3	24.9	14.5	11.0	-	
W54	334794	380852	x	9.1	18.8	11.8	7.3	6.6	8.4	x	x	x	14.2	14.7	11.4	8.2	-	
W55	332488	384189	23.2	12.0	24.2	x	10.4	8.8	11.1	12.3	14.4	15.2	10.2	29.3	15.6	11.8	-	
W56	332471	384120	21.3	11.8	17.1	13.6	x	x	9.8	12.5	12.1	13.6	17.1	25.7	15.5	11.7	-	
W57	332620	384345	21.4	10.3	22.6	14.8	9.4	7.9	9.9	12.9	12.1	12.5	13.9	21.9	14.1	10.7	-	
W58	332689	384332	22.0	11.0	23.1	15.1	8.5	8.2	9.3	11.7	11.5	14.2	19.5	27.8	15.2	11.5	-	
W59	332854	386834	26.7	x	26.1	17.8	x	8.1	18.8	x	16.7	x	17.7	31.7	20.5	13.0	-	
W60	332894	386792	x	x	26.8	17.9	x	x	x	15.7	x	16.5	19.7	29.9	21.1	12.9	-	
W61	328527	392568	26.2	11.2	30.4	17.9	10.3	8.5	11.8	12.9	x	19.6	20.0	32.2	18.3	13.9	-	
W62	328587	392536	27.3	13.1	28.1	15.5	10.8	9.8	13.5	14.8	13.8	19.0	23.9	33.4	18.6	14.1	-	
W63	331202	392366	28.6	18.4	30.5	18.9	12.1	11.8	x	15.4	x	20.4	26.8	35.2	21.8	16.6	-	
W64	331031	392396	27.5	x	33.1	16.8	13.6	11.8	15.4	13.9	14.3	20.5	25.5	33.9	20.6	15.6	-	
W65	332170	389843	x	x	**46.0**	32.8	21.9	19.4	21.1	25.7	28.4	33.8	38.6	x	29.7	22.6	-	

☒ **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.**

☒ **Wirral 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 Wirral Council During 2022

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

Additional Air Quality Works Undertaken by Wirral Council During 2022

In 2020, an Air Quality Modelling Study was commissioned to help in the preparation of the final stages for the new Local Plan before submission to the Secretary of State for public examination in 2021, this has now been used to inform the Local Plan which was published in 2022.

Wirral Council has not completed any additional works within the reporting year of 2022 relating to the development of action plan measures or the declaration, amendment, or revocation of an AQMA. Although further work regarding air quality monitoring locations has been undertaken for 2023, including a co-location study.

Review of Passive Diffusion Tube Monitoring Locations

A review of the monitoring locations of the existing passive diffusion tubes used to monitor nitrogen dioxide levels was undertaken in 2021. This review was carried out to ensure that monitoring was being undertaken in the most appropriate location. Several information sources were fed into the review including traffic information from the sustainable transport team, the Air Quality Monitoring Study, previous monitoring results at each site and information about the school streets initiative. Areas that may be impacted by future developments were also considered.

Following this review, two monitoring sites were removed, due to either the inability to access the site or unauthorised removal. The sites that were removed was W22/19, part way through the year and W47.

It was decided that one new monitoring station would be introduced in January 2022. And the two that were removed would be relocated. The three new monitoring sites that were introduced are W22/22, W47/22 and W65.

In summary, in 2022, fifty-three existing monitoring sites were retained, two existing monitoring sites were removed and three additional sites were introduced in 2022. Therefore, the total number of passive diffusion tube monitoring sites located in Wirral for 2022 is 56.

The table below summarises the changes to the site locations in 2022.

Site Ref Number	Address	Eastings	Northings	2022 status
W2	New Chester Road, Eastham	335887	379797	current
W3/19	Leasowe Road, Wallasey	329070	392309	current
W4	Borough Road, Tranmere	331322	387414	current
W5	Bolton Road East, New Ferry	334128	384634	current
W8	Hoylake Road, Moreton	326243	389946	current
W9	Woodchurch Road	329257	386448	current
W12	New Chester Road, New Ferry	334061	384617	current
W13	New Chester Road, New Ferry	334113	384588	current
W14/21 (previous ref W18w14/20)	Wallasey Road, Liscard	330462	391907	current
W15	Arrowe Park Road, Woodchurch	327625	386340	current
W17	St Albans Road, Liscard	330646	391805	current
W18/19	New Chester Road, New Ferry	334097	384546	current
W21	Singleton Avenue, Tranmere	331034	387019	current
W22/19	Norwood Road, Poulton	330643	390809	Deleted
W22/22	Norwood Road, Poulton	330729	390758	New
W23	Cleveland street, Birkenhead	332385	389154	current
W24	Conway Street, Birkenhead	332231	388723	current
W25	Dock Road, Seacombe	331756	390332	current
W26/19	Allport Lane, Bromborough	335053	381295	current
W27	New Chester Road, New Ferry	334194	384348	current
W28	Church Road, Bebington	333223	383277	current
W29/20	Mill Lane, Poulton	330209	391139	current
W30/20	Meols Drive, Hoylake	321560	388824	current
W31	Canning St, Birkenhead	332423	389398	current
W32	Telegraph Rd, Heswall	327174	381630	current
W33/19	Storeton road, Prenton	330921	386652	current
W34/19	New Chester Road, New Ferry	334096	384535	current
W35	Vernon Road, Poulton	331716	390696	current
W36/21	Geneva Road, Poulton	331843	390812	current
W37	Corporation Rd, Birkenhead	331529	389762	current
W38/19	Mount Road, Higher Bebington	331481	384564	current
W39/21	Chester Street, Birkenhead	332711	388856	current
W40	Barnston Rd, Pensby	328040	383300	current
W41	St Georges Road, Wallasey Village.	329487	392312	current
W42	New Chester Rd, Bromborough	334888	382627	current
W43	Whetstone Lane, B/head	331607	388353	current
W44	Banks Rd, West Kirby	321311	386666	current
W45	Arrowe Park Rd, Upton	327155	387140	current
W46	Travel blank			N/A
W47	Bridle Road, Eastham	335784	380076	Deleted
W47/22	Bridle Road, Eastham	335767	380068	New
W48	Wheatland Lane, Seacombe	331878	390822	current
W49	Cross Street, Birkenhead	332627	388749	current
W50	Parry Street, Seacombe	331928	390767	current
W51	Christchurch Primary School Mount Grove	331301	388040	current
W52	Christchurch Primary School Batten Road	331337	387973	current
W53	Raeburn Primary School Moreland Avenue	334697	380863	current
W54	Raeburn Primary School Moreland Avenue	334794	380852	current
W55	Brackenwood Junior School Norbury Avenue	332488	384189	current
W56	Brackenwood Junior School Norbury Avenue	332471	384120	current
W57	Brackenwood Infants School	332620	384345	current
W58	Brackenwood Infants School Acreville Road	332689	384332	current
W59	Rockferry Primary School Lees Ave	332854	386834	current
W60	Rockferry Primary School Ionic Street	332894	386792	current
W61	Greenleas Primary School Green Lane	328527	392568	current
W62	Greenleas Primary School Greenleas Road	328587	392536	current
W63	Liscard Primary School Manor Lane	331202	392366	current
W64	Liscard Primary School Withens Lane	331031	392396	current
W65	Tower Road, Birkenhead	332170	389843	New

QA/QC of Diffusion Tube Monitoring

Wirral Council uses SOCOTEC – Didcot, using a 50% TEA method of preparation for the analysis of its NO_2 diffusion tubes. Monitoring during 2022 was completed in adherence with the 2022 Diffusion Tube Monitoring Calendar. The Local Air Quality Management Help Desk has provided information on the precision data for each laboratory based on the results of duplicate or triplicate diffusion tubes being submitted for analysis. The data shows that Socotec – Didcot is determined to have **good** precision. You can find this information at the following link https://laqm.defra.gov.uk/diffusion-tubes/precision.html#SummaryPrecision

In the AIR PT intercomparison scheme for comparing spiked Nitrogen Dioxide diffusion tubes, SOCOTEC currently holds the highest rank of a **Satisfactory** laboratory.

Diffusion Tube Annualisation

Annualisation is required for any sites with data capture of less than 75% but greater than 33%. The method used to annualise this data was from the new Diffusion Tube Data Processing Tool – https://laqm.defra.gov.uk/tools-monitoring-data/DTDP.html this year there were a total of 7 diffusion tubes that required annualisation, these were sites; W22/22, W35, W47/22, W52, W54, W59 and W60 the results for these are provided in Table C.1.

Table C.1 – Annualisation Summary (concentrations presented in µg/m³)

Site ID	Annualisation Factor <Site 1 Name>	Annualisation Factor <Site 2 Name>	Annualisation Factor <Site 3 Name>	Annualisation Factor <Site 4 Name>	Average Annualisation Factor	Raw Data Annual Mean	Annualised Annual Mean
W22/22	1.0893	1.0736	0.9219		1.0283	22.0	22.6
W35	0.9482	0.9419	0.8486		0.9129	27.5	25.1
W47	1.0243	1.0016	0.8310		0.9523	24.7	23.5
W47/22	0.9323	0.9482	0.8394		0.9066	19.5	17.7
W52	1.0476	1.0541	0.9631		1.0216	16.7	17.1
W54	0.9715	0.9671	0.9027		0.9471	11.4	10.8
W59	0.8586	0.8610	0.7883		0.8360	20.5	17.1
W60	0.8148	0.8115	0.7963		0.8075	21.1	17.0

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 NOx/NO2 continuous analysers. Alternatively, the national database of diffusion tube co-location surveys provides bias factors for the relevant laboratory and preparation method. Wirral Council has not undertaken any recent co-location studies and has therefore, determined that the use of National adjustment factors to be the most appropriate method. This method was also used in the previous 5 years of reports.

For 2022, the data from the diffusion tubes has been bias adjusted using National Diffusion tube bias adjustment factor spreadsheet March 2023 for Socotec Didcot, using a 50% TEA preparation, over 26 studies, that can be seen below.

National Diffusion Tube Bias Adjustment Factor Spreadsheet — Spreadsheet Version Number: 03/23

Follow the steps below **in the correct order** to show the results of **relevant** co-location studies

Data only apply to tubes exposed monthly and are not suitable for correcting individual short-term monitoring periods

Whenever presenting adjusted data, you should state the adjustment factor used and the version of the spreadsheet

This spreadsheet will be updated every few months: the factors may therefore be subject to change. This should not discourage their immediate use.

This spreadsheet will be updated at the end of June 2023

LAQM Helpdesk Website

The LAQM Helpdesk is operated on behalf of Defra and the Devolved Administrations by Bureau Veritas, in conjunction with contract partners AECOM and the National Physical Laboratory.

Spreadsheet maintained by the National Physical Laboratory. Original compiled by Air Quality Consultants Ltd.

Step 1: Select the Laboratory that Analyses Your Tubes from the Drop-Down List

If a laboratory is not shown, we have no data for this laboratory.

Step 2: Select a Preparation Method from the Drop-Down List

If a preparation method is not shown, we have no data for this method at this laboratory.

Step 3: Select a Year from the Drop-Down List

If a year is not shown, we have no data [2]

Step 4:

Where there is only one study for a chosen combination, you should use the adjustment factor shown with caution. Where there is more than one study, use the overall factor[3] shown in blue at the foot of the final column.

If you have your own co-location study then see footnote[4]. If uncertain what to do then contact the Local Air Quality Management Helpdesk at LAQMHelpdesk@bureauveritas.com or 0800 0327953

Analysed By[1]	Method (To undo your selection, choose (All) from the pop-up list)	Year[2] (To undo your selection, choose (All))	Site Type	Local Authority	Length of Study (months)	Diffusion Tube Mean Conc. (Dm) (µg/m³)	Automatic Monitor Mean Conc. (Cm) (µg/m³)	Bias (B)	Tube Precision [4]	Bias Adjustment Factor (A) (Cm/Dm)
Socotec Didcot	50% TEA in acetone	2022	UB	Torfaen County Borough Council	13	13	10	33.4%	G	**0.75**
Socotec Didcot	50% TEA in acetone	2022	R	Bridgend Council	12	37	27	40.6%	G	**0.71**
Socotec Didcot	50% TEA in Acetone	2022	R	Cardiff Council / Shared Regulatory Services	11	42	33	27.3%	G	**0.79**
Socotec Didcot	50% TEA in Acetone	2022	R	Dacorum Borough Council	12	24	18	30.8%	G	**0.76**
Socotec Didcot	50% TEA in Acetone	2022	UB	Gravesham Borough Council	11	22	18	19.6%	G	**0.84**
Socotec Didcot	50% TEA in Acetone	2022	UB	Gravesham Borough Council	11	26	22	17.0%	G	**0.85**
Socotec Didcot	50% TEA in acetone	2022	R	Kingston Upon Hull City Council	12	30	23	27.9%	G	**0.78**
Socotec Didcot	50% TEA in acetone	2022	UB	Kingston Upon Hull City Council	12	24	18	35.0%	G	**0.74**
SOCOTEC Didcot	50% TEA in acetone	2022	UB	City Of York Council	12	16	13	31.6%	G	**0.76**
SOCOTEC Didcot	50% TEA in acetone	2022	R	City Of York Council	12	25	19	28.7%	G	**0.78**
SOCOTEC Didcot	50% TEA in acetone	2022	R	City Of York Council	11	23	17	37.2%	G	**0.73**
SOCOTEC Didcot	50% TEA in acetone	2022	R	City Of York Council	11	37	27	37.6%	G	**0.73**
SOCOTEC Didcot	50% TEA in acetone	2022	R	East Suffolk Council	11	32	23	38.6%	G	**0.72**
SOCOTEC Didcot	50% TEA in acetone	2022	R	Ipswich Borough Council	11	42	28	50.4%	G	**0.66**
SOCOTEC Didcot	50% TEA in acetone	2022	KS	Marylebone Road Intercomparison	12	60	42	40.7%	G	**0.71**
SOCOTEC Didcot	50% TEA in acetone	2022	R	North East Lincolnshire Council	10	46	31	48.4%	G	**0.67**
SOCOTEC Didcot	50% TEA in acetone	2022	R	North East Lincolnshire Council	10	28	27	3.7%	G	**0.96**
SOCOTEC Didcot	50% TEA in acetone	2022	R	Wrexham County Borough Council	12	16	14	15.5%	G	**0.87**
SOCOTEC Didcot	50% TEA in Acetone	2022	R	Horsham District Council	11	25	22	14.4%	G	**0.87**
SOCOTEC Didcot	50% TEA in acetone	2022	R	Leeds City Council	12	40	29	37.8%	G	**0.73**
SOCOTEC Didcot	50% TEA in acetone	2022	KS	Leeds City Council	11	33	23	44.6%	G	**0.69**
SOCOTEC Didcot	50% TEA in acetone	2022	R	Leeds City Council	12	43	34	26.0%	G	**0.79**
SOCOTEC Didcot	50% TEA in acetone	2022	R	Leeds City Council	11	41	30	34.2%	G	**0.75**
SOCOTEC Didcot	50% TEA in acetone	2022	R	Leeds City Council	12	30	22	36.9%	G	**0.73**
SOCOTEC Didcot	50% TEA in acetone	2022	UC	Leeds City Council	12	30	22	34.1%	G	**0.75**
SOCOTEC Didcot	50% TEA in Acetone	2022	R	Thanet District Council	12	23	17	29.1%	G	**0.77**
SOCOTEC Didcot	50% TEA in acetone	2022		**Overall Factor[3] (26 studies)**				**Use**		**0.76**

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

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	National	03/22	0.78
2020	National	03/21	0.77
2019	National	03/20	0.76
2018	National	03/19	0.77

NO_2 Fall-off with Distance from the Road

Wherever possible, monitoring locations are representative of exposure. However, where this is not possible, the NO_2 concentration at the nearest location relevant for exposure has been estimated using the Diffusion Tube Data Processing Tool/NO_2 fall-off with distance calculator available on the LAQM Support website. During the year 2022 it was not necessary to distance correct non-automatic annual mean NO_2 concentrations.

QA/QC of Automatic Monitoring

The real time air pollution monitoring network consists of an automatic monitoring station located in Tranmere and an automatic monitoring station located in Birkenhead. Both monitoring stations are part of the national survey and results can be found on the UK Air website at the following link; https://uk-air.defra.gov.uk/data/data_selector_service#mid

Tranmere AURN

This site is fully funded by the Environment Agency on behalf of DEFRA. Wirral Council is the local site operator (LSO) on behalf of DEFRA. The site is managed by Bureau Veritas and is maintained by Enviro Technology. Wirral Council as the LSO undertake 4 weekly routine calibration of the equipment, whilst Ricardo AEA undertake 6 monthly audits.

Birkenhead AURN

The official site name is Birkenhead Borough Road, which is classified as an Urban Traffic site. The site is managed by Bureau Veritas (CMCU) with current equipment support contracted to Air Monitors which includes 6-monthly service intervals and 6 monthly QAQC audits are carried out by Ricardo Energy & Environment. The LSO duties are contracted to AECOM who conduct fortnightly calibration checks on the gaseous equipment.

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

The type of $PM_{2.5}$ monitor(s) utilised within Wirral Council do not require the application of a correction factor.

Automatic Monitoring Annualisation

All automatic monitoring locations within Wirral Council recorded data capture of greater than 75% therefore it was not required to annualise any monitoring data. In addition, any sites with a data capture below 25% do not require annualisation.

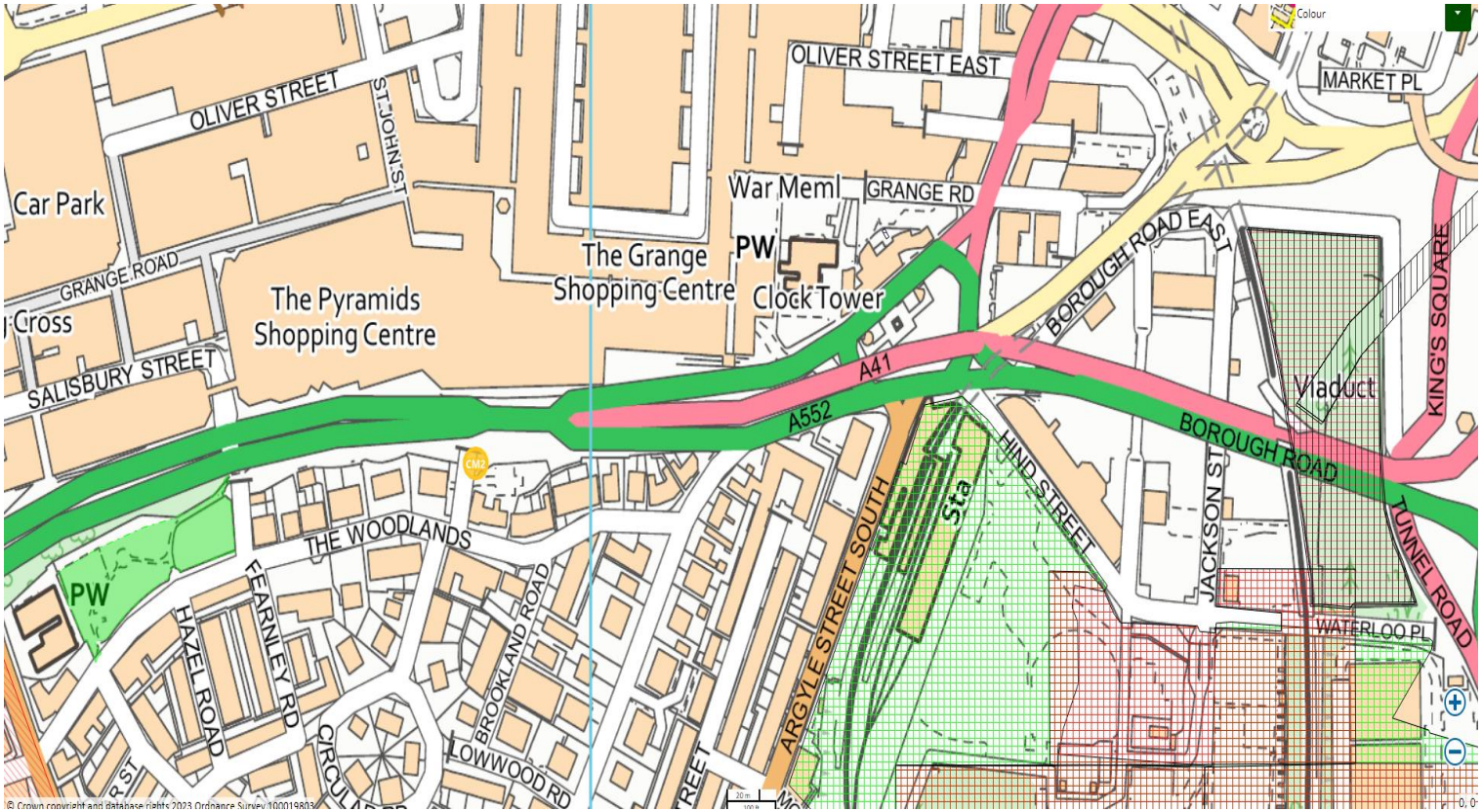
NO_2 Fall-off with Distance from the Road

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.

There is no site that require this calculation, based on the 2022 Automatic Monitoring results.

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

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



Legend

AURN Birkenhead

Location: Birkenhead

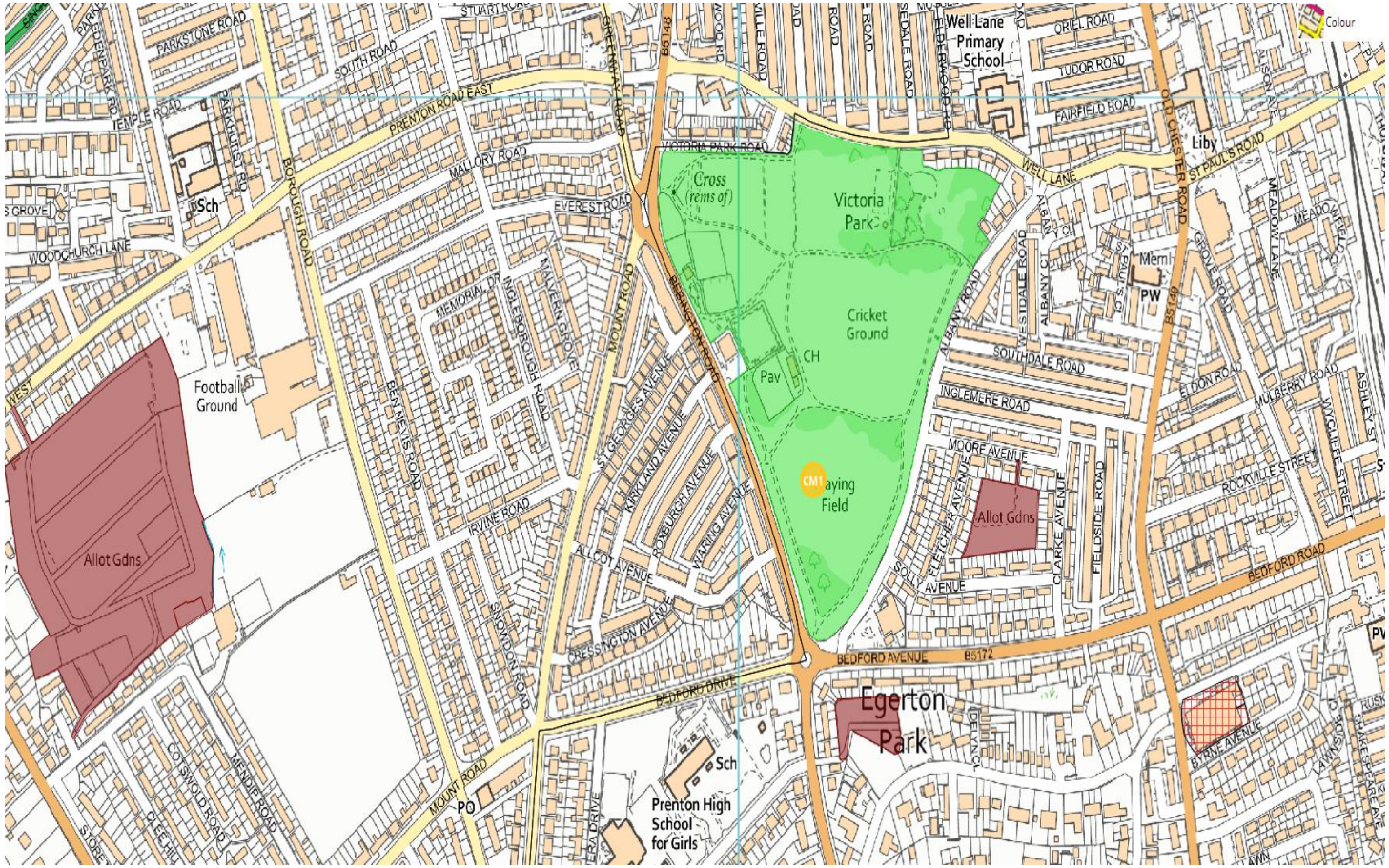
Birkenhead AURN

CM2 – AURN Birkenhead

Date: May 2023

Figure No. D1

Figure D.2 – Map of Automatic Monitoring Site



Legend

AURN

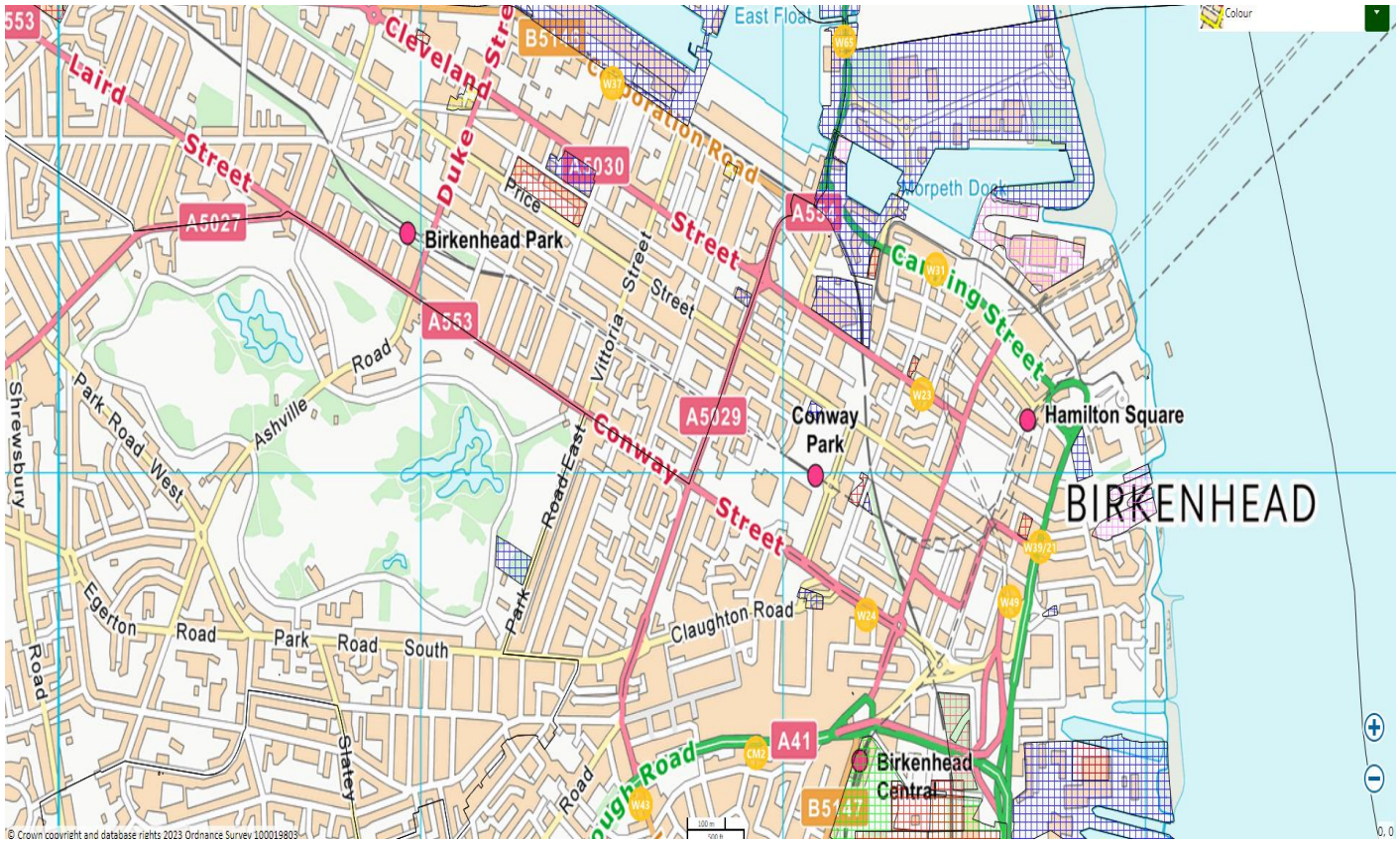
Location: Tranmere

AURN Tranmere

CM1 – AURN Tranmere

Date: May 2023	**Figure No. D2**

Figure D.3 – Map of Non-Automatic Monitoring Site



Legend

Diffusion tube location

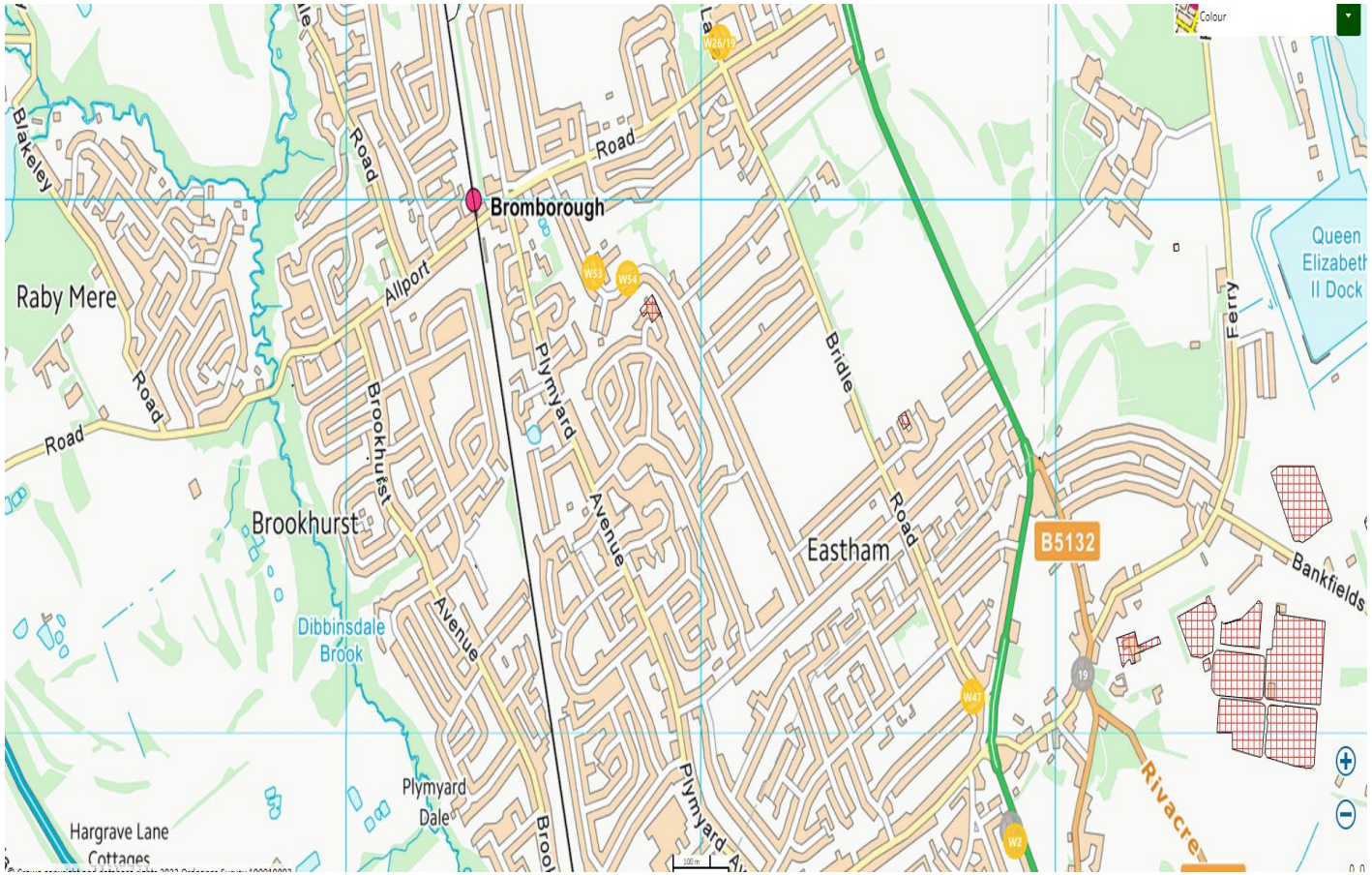
Location: Birkenhead

Diffusion Tube Locations

W23 – Cleveland Street
W24 – Conway Street
W31 – Canning Street
W37 – Corporation Road
W39/21 – Chester Street
W43 – Whetstone Lane
W49 – Cross Street
W65 – Tower Road

Date: May 2023	**Figure No. D3**

Figure D.4 – Map of Non-Automatic Monitoring Site



Legend

Diffusion tube location

Location: Bromborough and Eastham

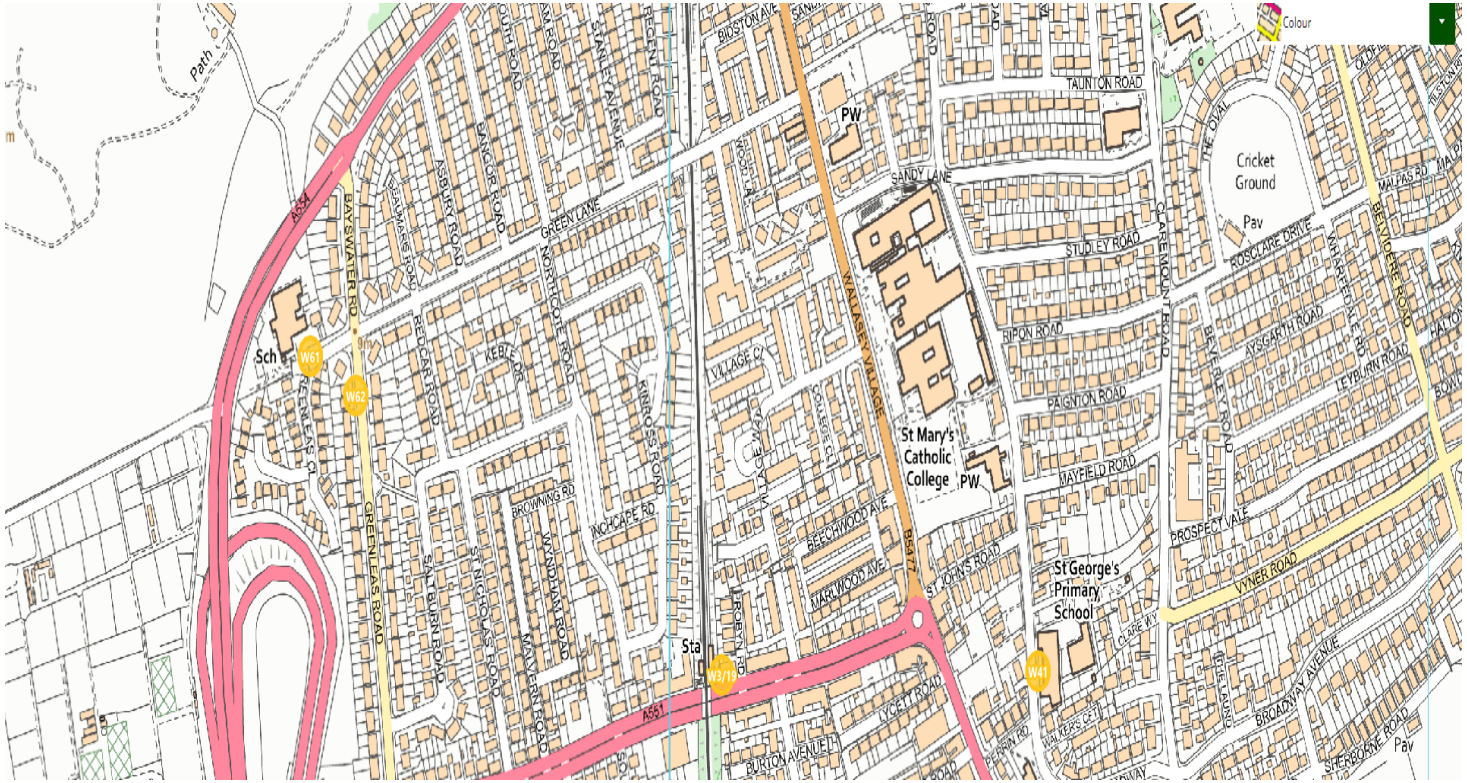
Diffusion Tube Locations

W2 – New Chester Road, Eastham
W26 – Allport Lane
W47 – Bridle Road, Eastham
W53 – Moorland Avenue, Raeburn Entrance
W54 – Moorland Avenue

Date: May 2023

Figure No. D4

Figure D.5 – Map of Non-Automatic Monitoring Site



Legend

Diffusion tube location

Location: Wallasey Village

Diffusion Tube Locations

W3/19 – Leasowe Road
W41 – St Georges Road
W61 – Green Lane, Greenleas Primary
W62 – Greenleas Road

Date: May 2023	**Figure No. D5**

Figure D.6 – Map of Non-Automatic Monitoring Site

Legend

Diffusion tube location

Location: Woodchurch/ Upton

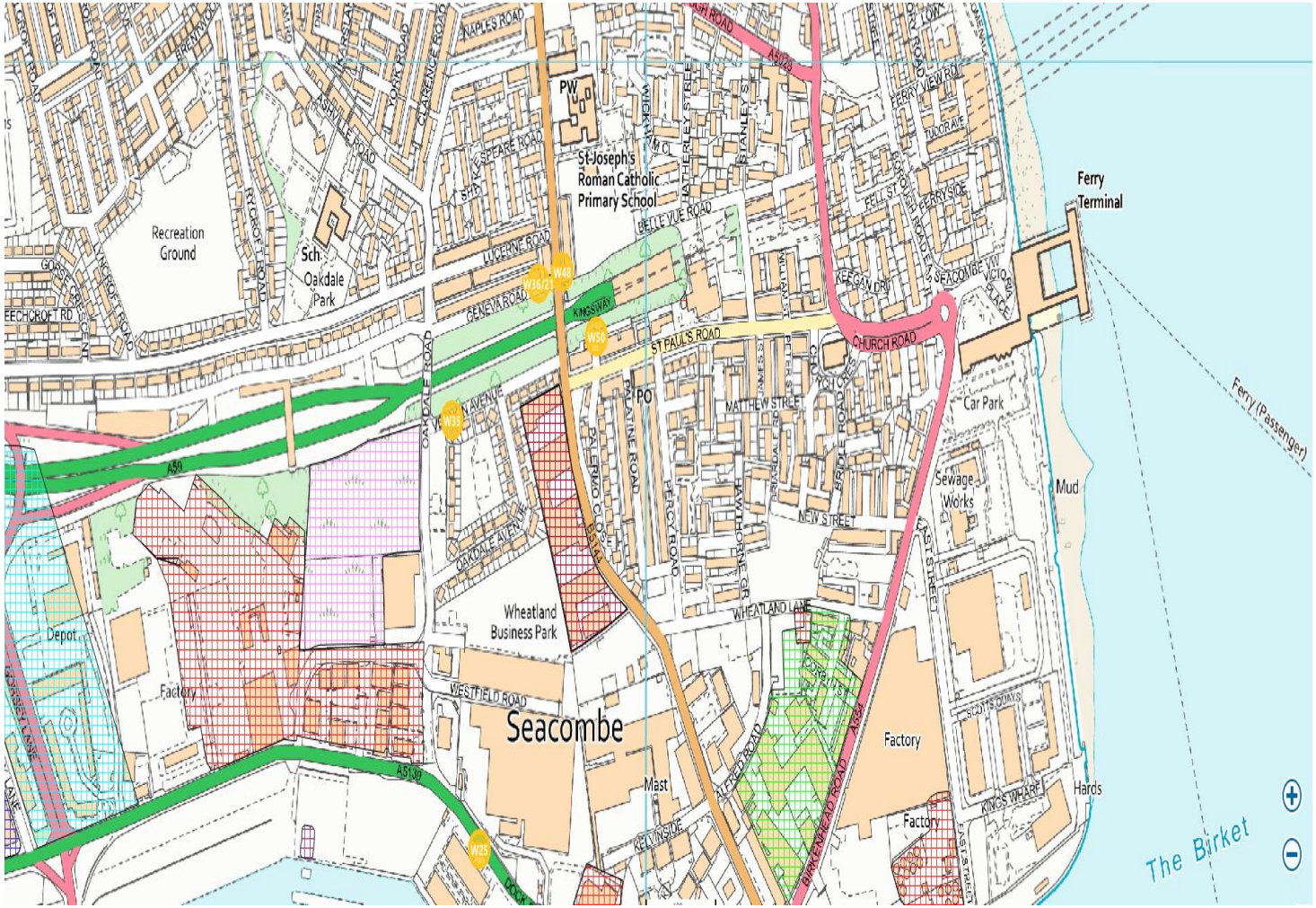
Diffusion Tube Locations

W15 – Arrowe Park Road, Woodchurch
W45 – Arrowe Park Rd, Upton

Date: May 2023

Figure No. D6

Figure D.7 – Map of Non-Automatic Monitoring Site



Legend

Diffusion tube location

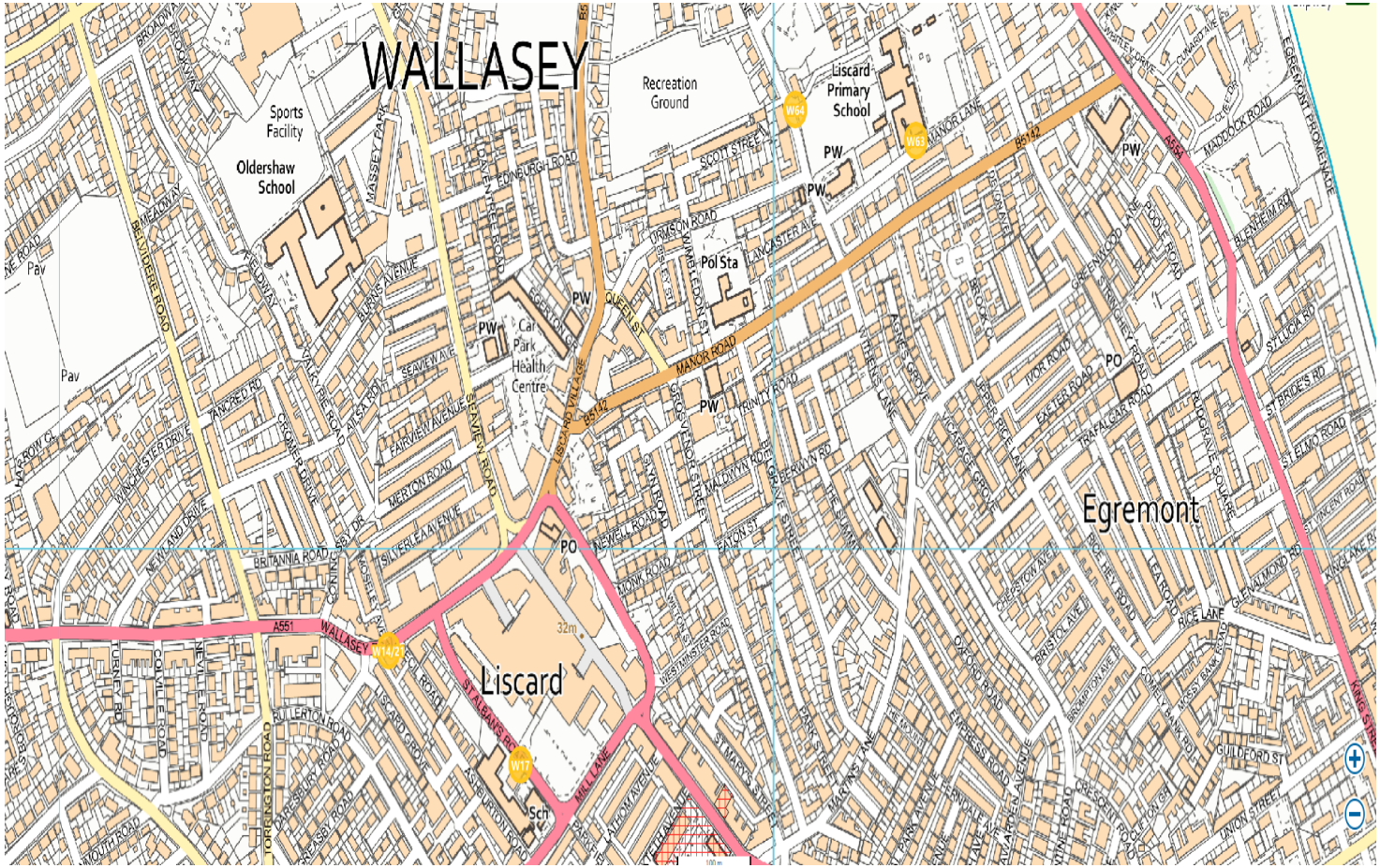
Location: Seacombe / Poulton

Diffusion Tube Locations

W25 – Dock Road
W35 – Vernon Avenue
W36 – Geneva Road
W48 – Wheatland Lane
W50 – Parry Street

Date: May 2023	**Figure No. D7**

Figure D.8 – Map of Non-Automatic Monitoring Site



Legend

Diffusion tube location

Location: Liscard

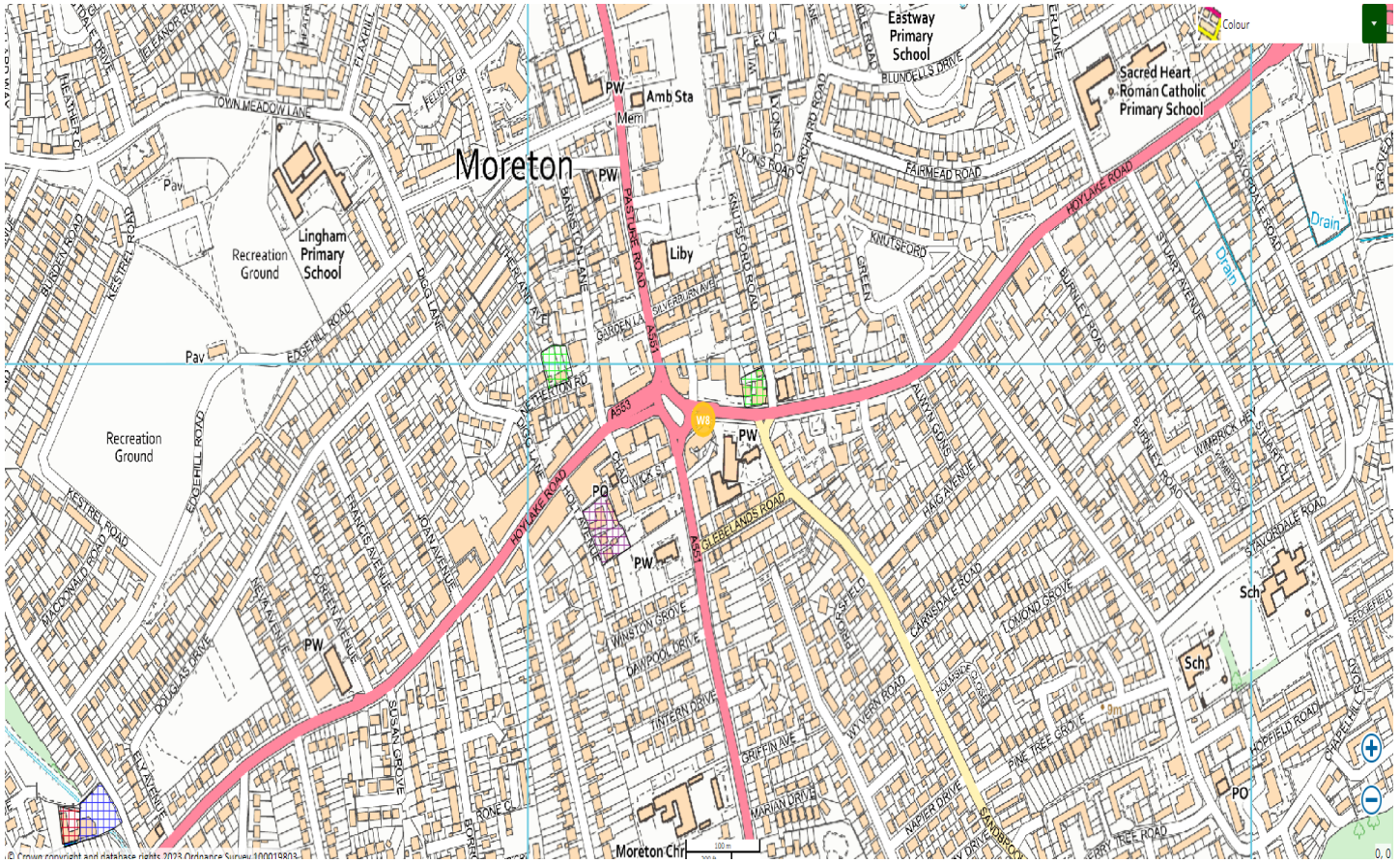
Diffusion Tube Locations

W17 – St Albans Road
W14/21 – Wallasey Road
W63 – Manor Lane, Liscard Primary
W64 – Withens Lane, Liscard Primary

Date: May 2023

Figure No. D8

Figure D.9 – Map of Non-Automatic Monitoring Site



Legend

Diffusion tube location

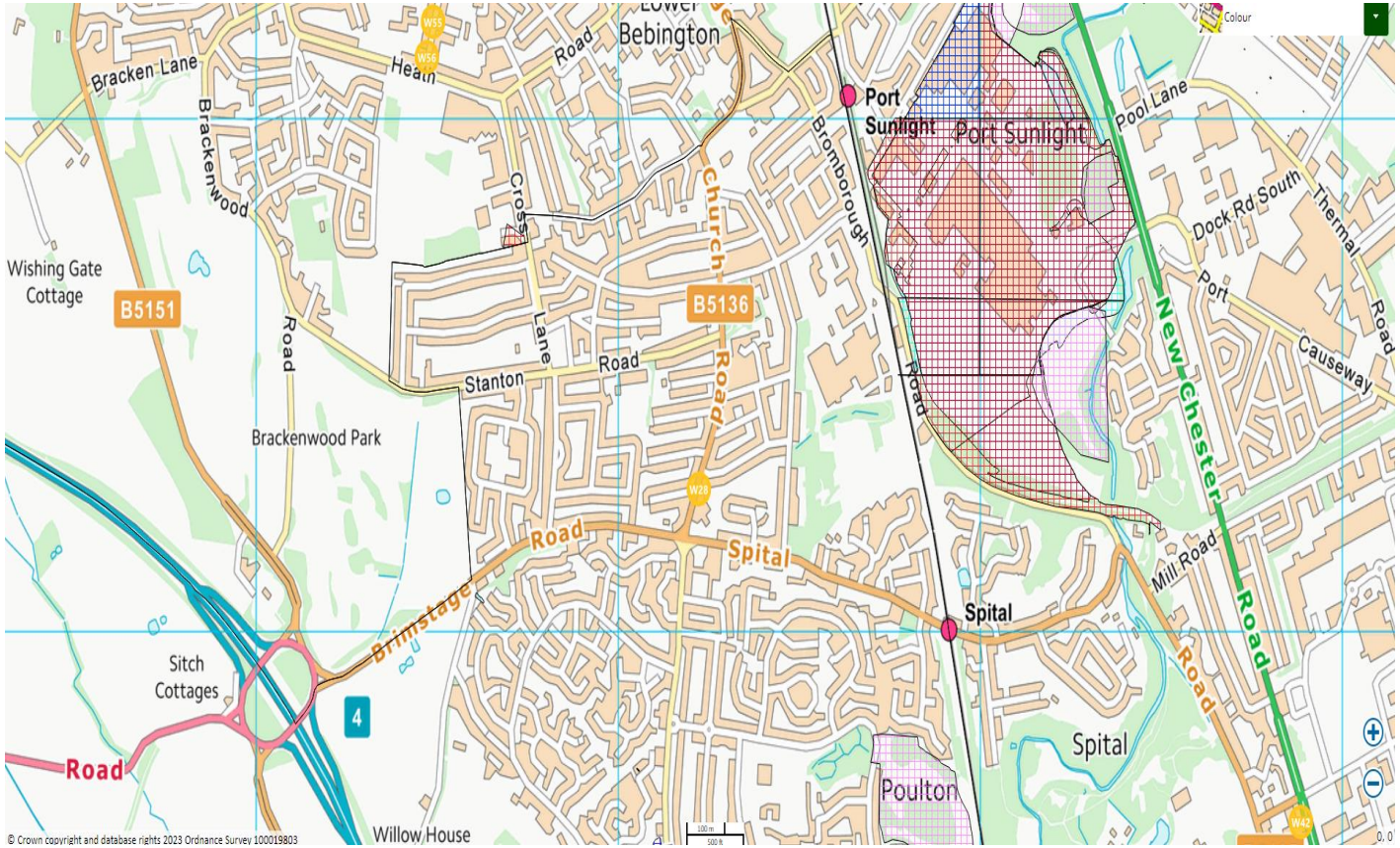
Location: Moreton

Diffusion Tube Locations

W8 – Moreton Cross, Moreton

Date: May 2023	**Figure No. D9**

Figure D.10 – Map of Non-Automatic Monitoring Site



Legend

Diffusion tube location

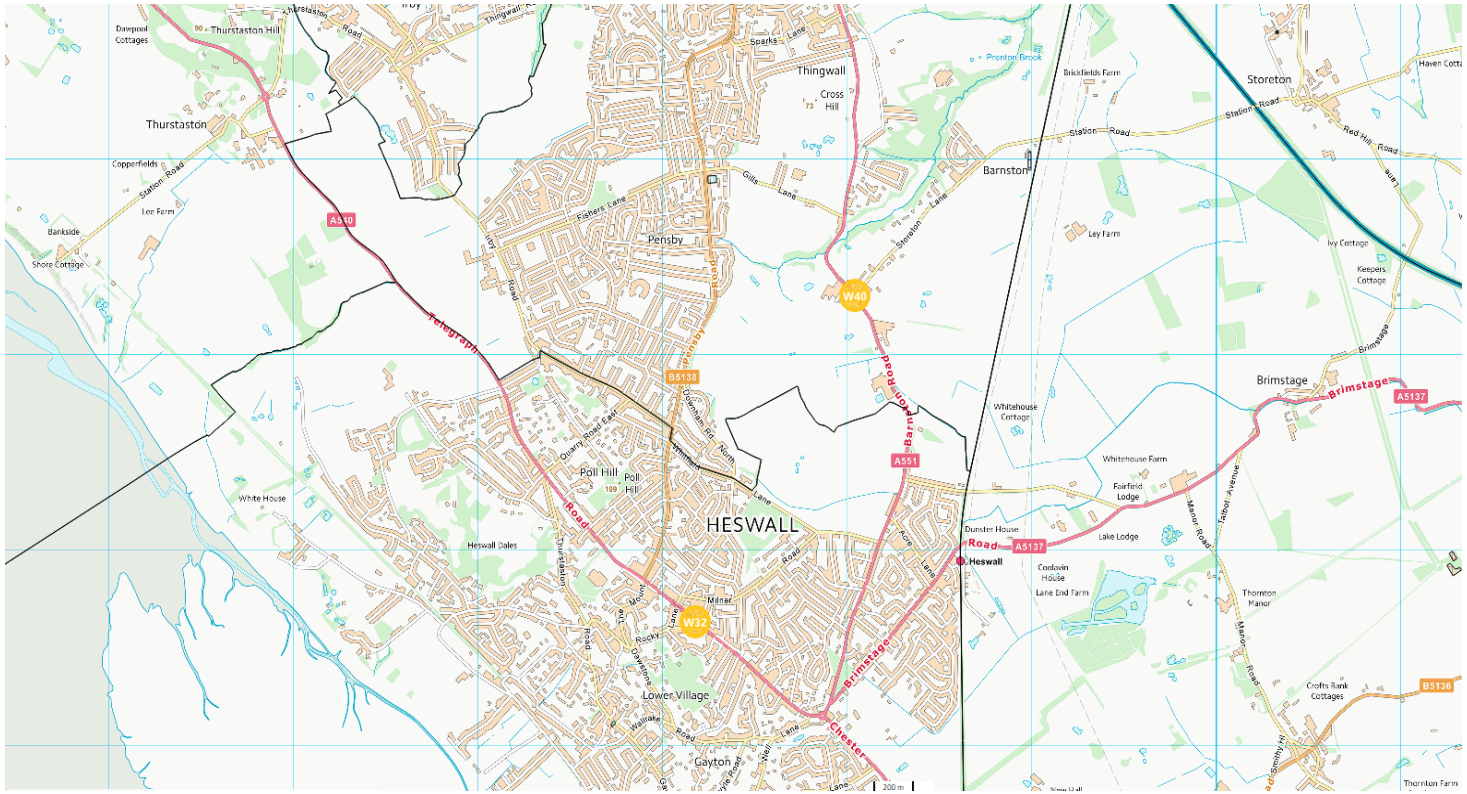
Location: Bebington / Bromborough

Diffusion Tube Locations

W28 – Church Road
W42 – New Chester Road, Bromborough
W55 – Norbury Avenue
W56 – Norbury Avenue

Date: May 2023	**Figure No. D10**

Figure D.11 – Map of Non-Automatic Monitoring Site



Legend

Diffusion tube location

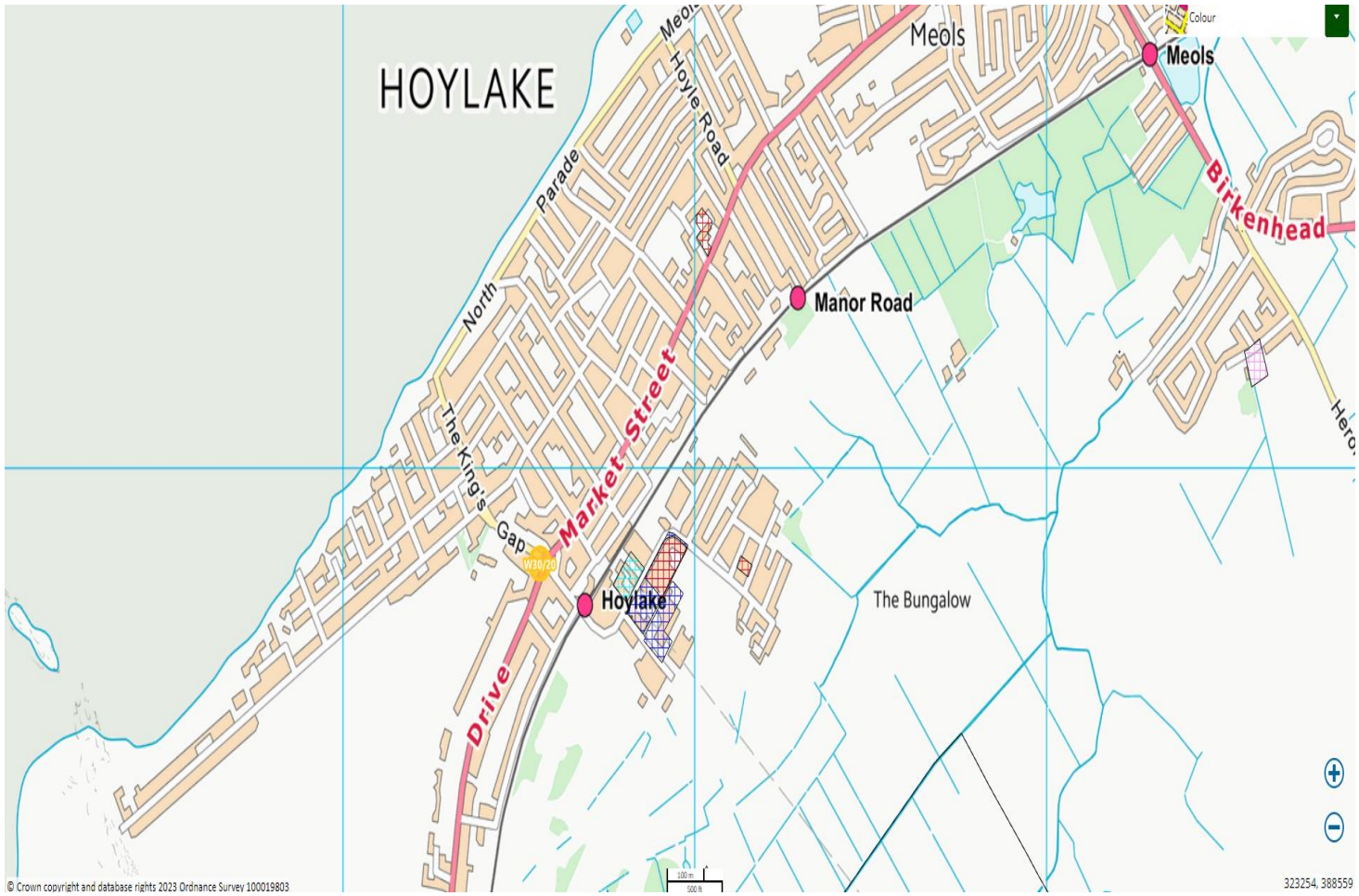
Location: Heswall / Pensby

Diffusion Tube Locations

W32 – Telegraph Road, Heswall
W40 – Barnston Road

Date: May 2023	**Figure No. D11**

Figure D.12 – Map of Non-Automatic Monitoring Site



Legend

Diffusion tube location

Location: Hoylake

Diffusion Tube Locations

W30/20 – Meols Drive, Hoylake

Date: May 2023	**Figure No. D12**

Figure D.13 – Map of Non-Automatic Monitoring Site

Legend

Diffusion tube location

Location: Prenton

Diffusion Tube Locations

W4 – Borough Road
W21 – Singleton Avenue
W33/19 – Storeton Road
W9 – Woodchurch Road
W51 – Mount Grove, Christchurch School
W52 – Brattan Road, Christchurch School

Date: May 2023	**Figure No. D13**

Figure D.14 – Map of Non-Automatic Monitoring Site

Legend

Diffusion tube location

Location: Higher Bebington

Diffusion Tube Locations

W38/19 – Mount Road
W57 – Pulford Road
W58 – Acreville Road

Date: May 2023

Figure No. D14

Figure D.15 – Map of Non-Automatic Monitoring Site

Legend

Diffusion tube location

Location: A41 Port Sunlight

Diffusion Tube Locations

W5 – Bolton Road East
W12 – New Chester Road
W13 – New Chester Road
W18/19 – New Chester Road
W34/19 – New Chester Road
W27 – New Chester Road

Date: May 2023

Figure No. D15

Figure D.16 – Map of Non-Automatic Monitoring Site

Legend

Diffusion tube location

Location: West Kirby

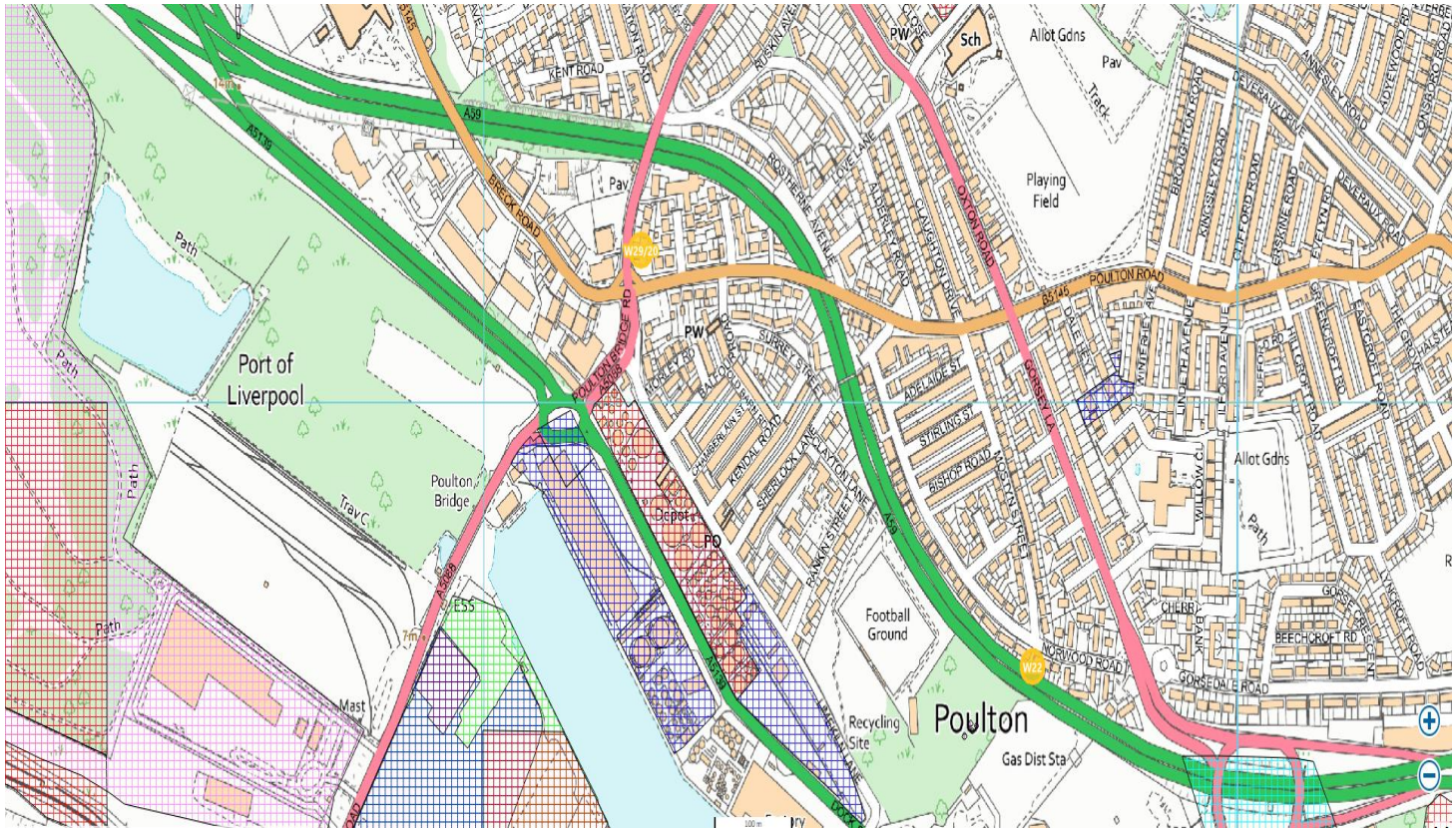
Diffusion Tube Locations

W44 – Banks Road

Date: May 2023

Figure No. D16

Figure D.17 – Map of Non-Automatic Monitoring Site



Legend

Diffusion tube location

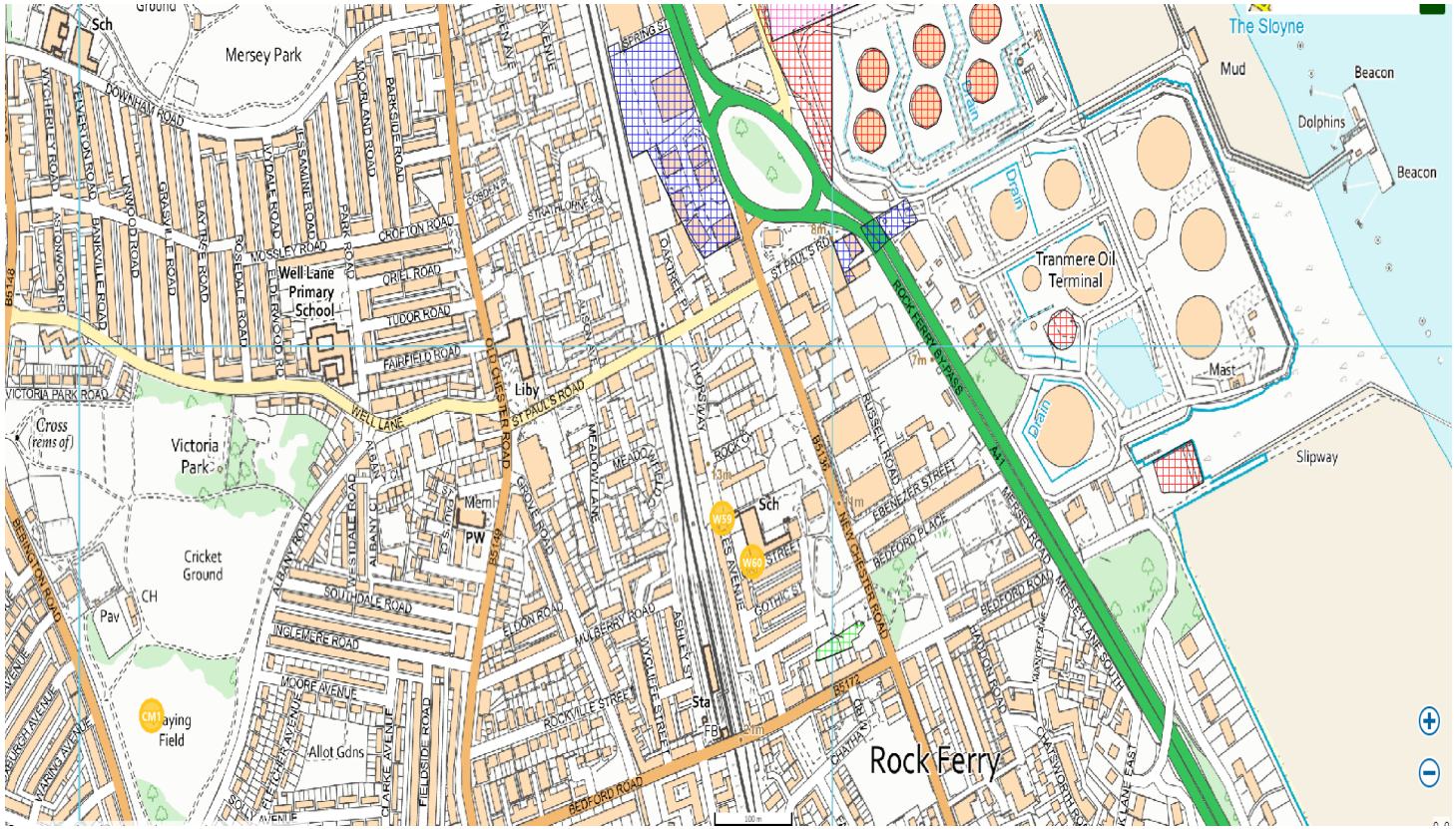
Location: Poulton

Diffusion Tube Locations

W22/19 – Norwood Road, Poulton
W29/20 – Mill Lane, Poulton

Date: May 2023	**Figure No. D17**

Figure D.18 – Map of Non-Automatic Monitoring Site



Legend

Diffusion tube location

Location: Rock Ferry

Diffusion Tube Locations

W59 – Lees Avenue, Rock Ferry Primary
W60 – Ionic Street, Rock Ferry Primary

Date: May 2023	**Figure No. D18**

Appendix E: Summary of Air Quality Objectives in England

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

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

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

Glossary of Terms

Abbreviation	Description
AQAP	Air Quality Action Plan - A detailed description of measures, outcomes, achievement dates and implementation methods, showing how the local authority intends to achieve air quality limit values'
AQMA	Air Quality Management Area – An area where air pollutant concentrations exceed / are likely to exceed the relevant air quality objectives. AQMAs are declared for specific pollutants and objectives
ASR	Annual Status Report
AURN	Automatic Urban Rural Network
CA	Combined Authority
CMCU	Central Management and Co-ordination Unit
CATP	Combined Authority Transport Plan
CRSTS	City Region Sustainable Transport Settlement
Defra	Department for Environment, Food and Rural Affairs
DMRB	Design Manual for Roads and Bridges – Air quality screening tool produced by National Highways
EA	Environment Agency
EU	European Union
FDMS	Filter Dynamics Measurement System
HSL	Health and Safety Laboratory
ITB	Integrated Transport Block
LAQM	Local Air Quality Management
LCR	Liverpool City Region
LCRCAQ	Liverpool City Region and Cheshire Air Quality Group
LSO	Local Site Operator
NO_2	Nitrogen Dioxide
NO_x	Nitrogen Oxides
NPPF	National Policy Planning Framework
OLEV	Office for Low Emission Vehicles

Abbreviation	Description
OZEV	Office for Zero Emission Vehicles
PHE	Public Health England
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
PHOF	Public Health Outcome Framework
PT	Proficiency Testing
QA/QC	Quality Assurance and Quality Control
SO_2	Sulphur Dioxide
STEP	Sustainable Transport Enhancement Programme
SUD	Sustainable Urban Development
UKHSA	UK Health Security Agency
UN	United Nations
WHO	World Health Organisation

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

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