

2024 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: June, 2024

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# Executive Summary: Air Quality in Our Area

Air Quality in Wirral

Breathing in polluted air affects our health and costs the NHS and our society billions of pounds each year. Air pollution is recognised as a contributing factor in the onset of heart disease and cancer and can cause a range of health impacts, including effects on lung function, exacerbation of asthma, increases in hospital admissions and mortality. In the UK, it is estimated that the reduction in healthy life expectancy caused by air pollution is equivalent to 29,000 to 43,000 deaths a year[[1]](#footnote-2).

Air pollution particularly affects the most vulnerable in society, children, the elderly, and those with existing heart and lung conditions. Additionally, people living in less affluent areas are most exposed to dangerous levels of air pollution[[2]](#footnote-3).

Table ES 1 provides a brief explanation of the key pollutants relevant to Local Air Quality Management and the kind of activities they might arise from.

Table ES 1 - Description of Key Pollutants

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| Pollutant | Description |
| Nitrogen Dioxide (NO2) | Nitrogen dioxide is a gas which is generally emitted from high-temperature combustion processes such as road transport or energy generation. |
| Sulphur Dioxide (SO2) | Sulphur dioxide (SO2) is a corrosive gas which is predominantly produced from the combustion of coal or crude oil. |
| Particulate Matter  (PM10 and PM2.5) | Particulate matter is everything in the air that is not a gas.  Particles can come from natural sources such as pollen, as well as human made sources such as smoke from fires, emissions from industry and dust from tyres and brakes.  PM10 refers to particles under 10 micrometres. Fine particulate matter or PM2.5 are particles under 2.5 micrometres. |

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), five ‘indicative’ real time monitors 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. The main pollutants of concern in Wirral are Nitrogen Dioxide and Particulate Matter.

Nitrogen Dioxide

Within Wirral, Nitrogen Dioxide is monitored in real time at the two DEFRA AURN stations and the five ‘indicative’ real time sensors. In addition, Nitrogen Dioxide is also monitored using passive diffusion tubes. During 2023, monitoring was undertaken at fifty-six sites across Wirral. There were no identified exceedances of the annual mean Nitrogen Dioxide national objective of 40µg/m3 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 of 200µg/m3 not to be exceeded more than 18 times a year for Nitrogen Dioxide levels monitored at the two AURN real time air pollution monitoring stations. Fifty-seven results are available for 2023, as site W09 was relocated mid-way through 2023 and replaced with W09/23. Both annualised results have been reported. The results from the five ‘indicative’ real time sensors show that no exceedances of the annual mean Nitrogen Dioxide national objective were identified at these monitoring stations.

Further details on the results for 2023 are provided in Appendix A and Appendix C. The monitoring during 2023 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 2022, to determine whether monitoring was still being undertaken in the most relevant locations. Several information sources were fed into the review including those listed above. Areas that may be impacted by future developments were also considered.

Following this review, during 2023, forty-eight existing monitoring sites were retained, eight existing sites were removed, and six new monitoring locations were added (NB one new site has three monitoring stations (triplicate) as part of a co-location study). The sites that were removed are W22, W23, W26, W30, W32, W40, W44 and W58. The new monitoring sites are W22/23, W23/23 W32/23, W44/23, W58/23 and W66 (comprising W66A, W66B and W66C). Site W09 was relocated half way through the year, due to withdrawn consent to monitor at the existing site and was replaced by monitoring site W09/23. Annualised results for both sites for 2023 are available.

A further passive diffusion tube monitoring review was carried out in December 2023. Following this review, all existing fifty-six passive diffusion tube monitoring sites were maintained for use for monitoring during 2024.

Particulate Matter

The AURN located in Tranmere monitors for background levels of Particulate Matter (PM10) and Particulate Matter (PM2.5).

The AURN data for PM10 has demonstrated that there have been no exceedances of the annual mean PM10 objective or PM10 daily mean concentrations air quality objective of 50µg/m3, not to be exceeded more than 35 times per year.

The AURN data for PM2.5 has demonstrated that in the five years between 2019 and 2023 Wirral has seen a small reduction in PM2.5 levels. The PM2.5 concentration for 2023 was an annual mean of 6.5µg/m3. This is above the current World Health Organisation Air Quality Guideline level of 5µg/m3 but below the new annual Mean Concentration Target 10µg/m3, set out in The Environmental Targets (Fine Particulate Matter) (England) Regulations 2023, which is to be met across England by 2040.

There were five real time ‘indicative’ real time sensors monitoring PM10 and PM2.5 during 2023. These sensors are located in:

* Birkenhead
* Eastham
* Liscard
* Poulton
* Upton

The results from this indicative monitoring show that no exceedances of the annual mean PM10 objective were identified, but all five indicative monitors measured levels of PM2.5 over the current World Health Organisation Air Quality Guideline level of 5µg/m3 and also abovethe new annual Mean Concentration Target of 10µg/m3 (to be met by 2040). The highest annual mean figure was 11.6µg/m3 (Liscard and Poulton) and the lowest was 10.5µg/m3 (Upton). It must be noted that these results are indicative only. They are not approved for use by local authorities for compliance monitoring according to TG22, however they can provide indicative air quality data to support our work in reducing air pollution.

The Environmental Targets (Fine Particulate Matter) (England) Regulations 2023 has implemented new legally binding PM2.5 targets, each with an interim target:

* 10 μg/m3 annual mean concentration PM2.5nationwide by 2040, with an interim target of 12 μg/m3 by January 2028.
* 35% reduction in average population exposure by 2040, with an interim target of a 22% reduction by January 2028, both compared to a 2018 baseline.

NB this is a single figure for England, calculated using data from all relevant AURN monitoring sites.

The Regeneration of Wirral

Wirral Council’s comprehensive regeneration vision sets out to deliver more than 17,000 new homes and 6,000 new jobs over the next 20 years. It is based on the Birkenhead 2040 Framework (BRF), a 20-year plan which outlines the vision and ambition for the transformational regeneration of Birkenhead. The council has secured substantial government funding in the last few years to transform Birkenhead plus parts of Wallasey, New Brighton and New Ferry through regeneration to support and enhance local communities. The work will support infrastructure improvements and town centre intervention, creating new neighbourhoods and homes and encouraging inward investment and job creation, with the aim of driving up economic growth and delivering improved prospects and prosperity for Wirral residents. Key projects include the docks area in Birkenhead and Wallasey, known as [Wirral Waters](https://www.wirralwaters.co.uk/), the proposed £150 million regeneration of [Birkenhead town centre](https://wirralgrowthcompany.co.uk/birkenhead/) and [Hind Street Urban Village](https://iondevelopments.co.uk/projects/hind-street-urban-village/).

The emerging 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 in the BRF area. The three remaining are designated at Liscard, New Brighton and New Ferry.

A series of Masterplans and Neighbourhood Frameworks have been produced and published for public consultation and can be viewed via the council’s ‘Have your say’ consultation portal: <https://haveyoursay.wirral.gov.uk/>

Regeneration Projects

* The Left Bank

There is a regeneration programme along the Left Bank of the River Mersey stretching from New Brighton to Rock Ferry. This regeneration includes projects such as:

* [Hind Street Urban Village](https://iondevelopments.co.uk/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](https://www.wirralwaters.co.uk/). Birkenhead town centre is also being regenerated, including the provision of two Grade A commercial buildings, one of which Wirral Council staff relocated to in April 2024.

* Liscard

Liscard is now one of fifty-five projects across the country to have been selected to receive cash from the Round three of Levelling Up grants which total £1,105 million.

Wirral Council had bid for Levelling Up Funding in July 2022 and was initially unsuccessful, but the Government has looked again at the plans submitted by the local authority for the town centre.

**Liscard is now in line to receive £10.7 million Levelling Up funding as part of what will be a major boost for the town and local traders.**

* New Ferry

There is a regeneration plan for New Ferry, followinga 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.

Planning permission has now been granted for the development of the second part of the regeneration programme on Woodhead Street and part of New Chester Road.  A further forty-three new homes will be constructed in Phase two, with construction work on site expected to begin next year.

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[[3]](#footnote-4) sets out actions that will drive continued improvements to air quality and to meet the new national interim and long-term targets for fine particulate matter (PM2.5), the pollutant of most harmful to human health. The Air Quality Strategy[[4]](#footnote-5) provides more information on local authorities' responsibilities to work towards these new targets and reduce fine particulate matter in their areas.

The Road to Zero[[5]](#footnote-6) details the Government’s approach to reduce exhaust emissions from road transport through a number of mechanisms, in balance with the needs of the local community. This is extremely important given that cars are the most popular mode of personal travel, and the majority of Air Quality Management Areas (AQMAs) are designated due to elevated concentrations heavily influenced by transport emissions.

# 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.

Management of Local Air Quality

Wirral Council carries out its local air quality management duties by monitoring for pollution, assessing pollution levels and taking action to improve local air quality. We are currently working in partnership with Liverpool John Moores University to undertake research into indoor air quality.

Air Quality Strategy

Wirral Council has implemented an Air Quality Strategy 2024 – 28. This Strategy has been developed following wide consultation with the public and key external stakeholders including housing associations, community, voluntary and faith sectors, local businesses, the National Health Service, schools, Chamber of Commerce, and transport sector, to ensure that it represents the priorities of the local community and outlines how local partners will work effectively together to achieve the collectively agreed vision, aims, and objectives.

The development of this Strategy provides a framework for future action to improve air quality within Wirral. It is consistent with national guidelines and will assist the council to achieve its objective of improving the air quality within Wirral to help to better the environment and the health and well-being of all residents and visitors to the area.

This strategy identifies five key areas for action, which are:

* Reduce emissions from transport
* Improve indoor air quality
* Reduce the impact from housing development and regeneration
* Reduce domestic, commercial, industrial and agricultural emissions
* Raise public awareness and encourage behaviour change

An implementation plan has been produced to drive forward actions to target the five key priority areas. This plan will be a live document and will be updated accordingly, during the lifetime of the strategy.

Wirral Council Air Quality Steering 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 four times per year and co-ordinate the Council’s obligation to manage air quality. The group oversaw the development of Wirral’s Air Quality Strategy and will monitor progress with the strategy implementation plan.

Project to Reduce Particulate Emissions from Domestic Burning.

[The National Clean Air Strategy 2019](https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/770715/clean-air-strategy-2019.pdf), 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 obtained funding from DEFRA in 2023, 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 is enabling Wirral to work towards meeting the targets for PM2.5 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.  Work on the [‘Breathe Better’](https://www.wirral.gov.uk/breathebetter) project commenced in August 2023, with an initial poster and video campaign launched in February 2024, which focused mainly on domestic wood burning.



In March 2024, a further campaign was launched with four key messages that featured in a campaign animation and accompanying assets:

1. At home, only burn when necessary, use non-toxic cleaning products and keep your home well ventilated.
2. Where you can, avoid peak traffic times and walk along quieter routes, away from the kerb**.**
3. When stationary in your car, turn your engine off, if safe to do so. Everyone is affected by idling engine fumes.
4. Where you can, walk, wheel, or take public transport as an alternative to driving.

Further engagement, using seasonal messaging when appropriate and linking in with key awareness days such as Clean Air Day, will run from May – October 2024 and the domestic burning campaign will be relaunched for winter 2024. An evaluation of the campaigns will be undertaken early in 2025.

Wirral Joint Strategic Needs Assessment (JSNA) on Air Quality

[The Wirral Intelligence Service Joint Strategic Needs Assessment (JSNA) on outdoor air quality](https://www.wirralintelligenceservice.org/jsna/environmental-health-health-protection/) 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](https://www.wirral.gov.uk/about-council/climate-change-and-sustainability/climate-change-action) in July 2019.  A new climate change strategy, [Cool 2](https://www.wirral.gov.uk/about-council/climate-change-and-sustainability/consultation-new-cool-2-climate-change-strategy), 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 United Nations’ 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 Policy and an Environment and Climate Emergency Action Plan (ECEAP), which set the ambitious but achievable target of the council and its entity being ‘net carbon neutral’ by 2030. The ECEAP was developed in 2020 and is designed to drive fundamental change to the way the council operates, makes decisions, and provides services. The action plan has recently been reviewed and aligned to complement, but not duplicate, the developing Air Quality Strategy Implementation Plan, which will deliver on three of the thirteen ECE policies;

* Supporting an increase in the use of walking, wheeling, and cycling.
* Working to support an increase in public transport use.
* Securing investment to support the necessary shift to ultra-low carbon vehicles.

## Conclusions and Priorities

Wirral has no AQMA’s and no exceedances of the national objectives for Nitrogen Dioxide were identified during 2023, at any monitoring location. Forty-eight passive diffusion monitoring sites were in place for both 2022 and 2023 and therefore have comparable data. Eight of these sites showed increased concentrations of Nitrogen Dioxide from 2022 to 2023, three sites showed no change in concentrations and thirty-seven sites showed a reduction in concentrations. It is noted that some of these reductions are very small.

The data obtained from the two AURN’s located in Wirral shows that there have been no exceedances of the national objectives for Nitrogen Dioxide. The data obtained from the five real time indicative monitors show that there have been no exceedances of the national objectives for Nitrogen Dioxide.

The AURN data for PM10 and PM2.5 has demonstrated that there have been no exceedances of the annual mean PM10 objective or the PM10 daily mean concentrations air quality objective of 50µg/m3, not to be exceeded more than 35 times per year. It also shows no exceedances of the PM2.5 annual mean objective.

The results of the five indicative real time sensors show that there have been no exceedances of the Nitrogen Dioxide annual mean or hourly objectives. They also show no exceedances of the annual mean PM10 objective were identified. All five indicative monitors measured levels of PM2.5 over the current World Health Organisation Air Quality Guideline level and also abovethe new annual Mean Concentration Target (to be met by 2040). It must be noted that these results are indicative only. They are not approved for use by local authorities for compliance monitoring according to TG22, however they can provide indicative air quality data to support our work in reducing air pollution.

The results of approved monitoring methods 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 drive forward an implementation plan for the new Wirral Air Quality Strategy, which was implemented in December 2023. This will detail the work that is planned and the work that is underway to address the identified priority areas for action.
* To continue the DEFRA funded ‘Breathe Better’ campaign project to Reduce Particulate Emissions from Domestic Burning and provide residents with the knowledge to protect themselves from air pollution through delivery of an information and awareness campaign.
* To fully utilise the planning system, in accordance with guidance, to effectively promote air quality.
* To continue to robustly monitor air quality in the borough, to ensure the concentrations are within the National objectives.
* 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 and enable increased number of journeys to be undertaken by walking, wheeling, and cycling and to make public transport cleaner and easier to use.
* 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, ‘Breathe Better’ which aims to raise awareness of air pollution and inform Wirral’s residents about best burning practices.
* To refresh and relaunch Wirral’s ‘You’re the key’ campaign, to target idling vehicle engines and help 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.
* To capitalise and support new and changed behaviours e.g. increased numbers of journeys being undertaken by active modes and public transport, which may positively influence better air quality.

The main challenge is making best use of available resources.

## Local Engagement and How to get Involved

The council engaged with our local communities and key external stakeholders during the co-development of the Air Quality Strategy 2024 – 28, and we are keen to maintain engagement regarding air pollution and the actions that can be taken to reduce exposure and improve air quality.

The council has also engaged with the local communities through the ‘Breathe Better’ campaign.

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](https://www.wirralintelligenceservice.org/jsna/environmental-health-health-protection/) 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 or cycling 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 obtain further information on air pollution from websites such as the [Clean Air Hub](https://www.cleanairhub.org.uk/clean-air-information). They can also join local community groups such as, but not limited to, Wirral Environmental Network.

Clean Air Day 2024

Environmental Health will be hosting an engagement event on Clean Air Day 2024, to provide information to our residents on:

* wood burning and its impact on air quality
* indoor air quality
* the impact of idling engines on air quality
* our ‘Breathe Better’ campaign, and
* general information on the air quality in Wirral.

The stall will be located at West Kirby Concourse in the morning, and Birkenhead Market in the afternoon. Feedback on the event will be provided in ASR 2025.

## 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:

* John Entwistle, Principal Forward Planning Officer
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This ASR has been approved by:

* Jackie Davidson, Public Health Consultant and
* Deeta Cooper, Environmental Health Senior Manager

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

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Table of Contents

[Executive Summary: Air Quality in Our Area ii](#_Toc169602435)

[Air Quality in Wirral ii](#_Toc169602436)

[Actions to Improve Air Quality viii](#_Toc169602437)

[Summary of Core Actions ix](#_Toc169602438)

[Conclusions and Priorities xii](#_Toc169602439)

[Local Engagement and How to get Involved xiv](#_Toc169602440)

[Local Responsibilities and Commitment xvi](#_Toc169602441)

[1 Local Air Quality Management 1](#_Toc169602442)

[2 Actions to Improve Air Quality 2](#_Toc169602443)

[2.1 Air Quality Management Areas 2](#_Toc169602444)

[2.2 Progress and Impact of Measures to address Air Quality in Wirral Council 3](#_Toc169602445)

[2.3 PM2.5 – Local Authority Approach to Reducing Emissions and/or Concentrations 34](#_Toc169602446)

[3 Air Quality Monitoring Data and Comparison with Air Quality Objectives and National Compliance 38](#_Toc169602447)

[3.1 Summary of Monitoring Undertaken 38](#_Toc169602448)

[3.2 Individual Pollutants 39](#_Toc169602449)

[Nitrogen Dioxide (NO2) 39](#_Toc169602450)

[Table 3.1 – Changes in Nitrogen Dioxide Levels at Passive Monitoring Sites Between 2022 – 23 41](#_Toc169602451)

[Table 3.2 – Changes in Nitrogen Dioxide Levels at Passive Monitoring Sites Between 2019 – 23 42](#_Toc169602452)

[Particulate Matter (PM10) 43](#_Toc169602453)

[Particulate Matter (PM2.5) 44](#_Toc169602454)

[Appendix A: Monitoring Results 46](#_Toc169602455)

[Appendix B: Full Monthly Diffusion Tube Results for 2023 63](#_Toc169602456)

[Appendix C: Supporting Technical Information / Air Quality Monitoring Data QA/QC 67](#_Toc169602457)

[New or Changed Sources Identified Within Wirral Council During 2023 67](#_Toc169602458)

[Additional Air Quality Works Undertaken by Wirral Council During 2023 67](#_Toc169602459)

[Table C1. Changes to Site Locations for 2023 68](#_Toc169602460)

[QA/QC of Diffusion Tube Monitoring 69](#_Toc169602461)

[QA/QC of Automatic Monitoring 72](#_Toc169602462)

[**Non-LAQM monitoring results** 73](#_Toc169602463)

[Table C.5 Annual Mean Results For Indicative Real Time Sensors 74](#_Toc169602464)

[Appendix D: Map(s) of Monitoring Locations and AQMAs 75](#_Toc169602465)

[Figure D.1 – Map of Non-Automatic Monitoring Site 75](#_Toc169602466)

[Figure D.2 – Map of Automatic Monitoring Site 76](#_Toc169602467)

[Figure D.3 – Map of Non-Automatic Monitoring Site 77](#_Toc169602468)

[Figure D.4 – Map of Non-Automatic Monitoring Site 78](#_Toc169602469)

[Figure D.5 – Map of Non-Automatic Monitoring Site 79](#_Toc169602470)

[Figure D.6 – Map of Non-Automatic Monitoring Site 80](#_Toc169602471)

[Figure D.7 – Map of Non-Automatic Monitoring Site 81](#_Toc169602472)

[Figure D.8 – Map of Non-Automatic Monitoring Site 82](#_Toc169602473)

[Figure D.9 – Map of Non-Automatic Monitoring Site 83](#_Toc169602474)

[Figure D.10 – Map of Non-Automatic Monitoring Site 84](#_Toc169602475)

[Figure D.11– Map of Non-Automatic Monitoring Site 85](#_Toc169602476)

[Figure D.12 – Map of Non-Automatic Monitoring Site 86](#_Toc169602477)

[Figure D.13 – Map of Non-Automatic Monitoring Site 87](#_Toc169602478)

[Figure D.14 – Map of Non-Automatic Monitoring Site 88](#_Toc169602479)

[Figure D.15 – Map of Non-Automatic Monitoring Site 89](#_Toc169602480)

[Figure D.16 – Map of Non-Automatic Monitoring Site 90](#_Toc169602481)

[Figure D.17 – Map of Non-Automatic Monitoring Site 91](#_Toc169602482)

[Figure D.18 – Map of Non-Automatic Monitoring Site 92](#_Toc169602483)

[Figure D.19 – Map of Non-Automatic Monitoring Site 93](#_Toc169602484)

[Appendix E: Summary of Air Quality Objectives in 94](#_Toc169602485)

[England 94](#_Toc169602486)

[Glossary of Terms 95](#_Toc169602487)

[References 97](#_Toc169602488)

Figures

[Figure A.1 – Trends in Annual Mean NO2 Concentrations 58](#_Toc168933381)

Tables

[Table 2.2 – Progress on Measures to Improve Air Quality 10](#_Toc161820866)

[Table 3.1 – Changes in Nitrogen Dioxide Levels at Passive Monitoring Sites Between 2022 – 23 41](#_Toc168933623)

[Table 3.2 – Changes in Nitrogen Dioxide Levels at Passive Monitoring Sites Between 2019 – 23 42](#_Toc168933624)

[Table A.1 – Details of Automatic Monitoring Sites 46](#_Toc161820867)

[Table A.2 – Details of Non-Automatic Monitoring Sites 47](#_Toc161820868)

[Table A.3 – Annual Mean NO2 Monitoring Results: Automatic Monitoring (µg/m3) 52](#_Toc161820869)

[Table A.4 – Annual Mean NO2 Monitoring Results: Non-Automatic Monitoring (µg/m3) 53](#_Toc161820870)

[Table A.5 – 1-Hour Mean NO2 Monitoring Results, Number of 1-Hour Means > 200µg/m3 59](#_Toc161820871)

[Table A.6 – Annual Mean PM10 Monitoring Results (µg/m3) 60](#_Toc161820872)

[Table A.7 – 24-Hour Mean PM10 Monitoring Results, Number of PM10 24-Hour Means > 50µg/m3 61](#_Toc161820873)

[Table A.8 – Annual Mean PM2.5 Monitoring Results (µg/m3) 60](#_Toc161820874)

[Table B.1 – NO2 2023 Diffusion Tube Results (µg/m3) 49](#_Toc161820876)

Table C.1 – Changes to Site Locations for 2023 ……………………………………………. 68

[Table C.2 – Annualisation Summary (concentrations presented in µg/m3) 70](#_Toc168296625)

[Table C.3 – Bias Adjustment Factor 71](#_Toc168296626)

[Table C.4 – Local Bias Adjustment Calculation 72](#_Toc168296627)

Table C.5 Annual Mean Results For Indicative Real Time Sensors ………………………74

[Table E.1 – Air Quality Objectives in England 95](#_Toc161820882)

# Local Air Quality Management

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

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

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

# Actions to Improve Air Quality

* 1. Air Quality Management Areas

Air Quality Management Areas (AQMAs) are declared when there is an exceedance or likely exceedance of an air quality objective. After declaration, the authority should prepare an Air Quality Action Plan (AQAP) within 18 months. The AQAP should specify how air quality targets will be achieved and maintained, and provide dates by which measures will be carried out.

Wirral Council currently does not have any declared AQMAs. A local Air Quality Strategy is in place to prevent and reduce polluting activities. The Local Air Quality Strategy is available at <https://www.wirral.gov.uk/environmental-problems/pollution-control/wirrals-air-quality-strategy-2024-2028>

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

Defra’s appraisal of last year’s ASR concluded

1. This is generally a very good ASR containing a lot of detail about measures being undertaken by Wirral Metropolitan Borough Council to address air quality including the measures being undertaken to address PM2.5.

**Action:** None required.

1. In Table C.1, the names of the automatic monitoring sites used to calculate annualisation factors should be included.

**Action**: Site names are included in the 2024 report.

1. WMBC included the comments from the 2022 ASR, additionally they responded to and acted upon these comments which is encouraging to see and has led to a generally high quality 2023 ASR.

**Action:** None required.

1. The inclusion of tables showing the percentage changes in NO2 concentrations from 2021 to 2022 as well as the changes in concentrations from 2018 to 2022 is welcomed. These tables help to show the trends observed at these monitoring sites clearly.

**Action**: None required.

1. In the maps showing the monitoring site locations, it is still difficult to see where the sites are located as the new colour chosen is still very similar to the map background colour. Additionally, the base mapping appears to be slightly distorted in a few of the figures.

**Action:** A new colour has been used to identify the site locations this year. The sites were highlighted in orange in the 2023 report, they are now red. The maps have been amended to remove distortions.

1. A clear statement has been provided that the monitoring has been undertaken in line with the 2022 diffusion tube monitoring calendar published by Defra. This is appreciated for clarity.

**Action**: None required.

1. The Council may consider undertaking a co-location study in future in order to calculate a local bias adjustment factor.

**Action:** A co-location study was implemented in 2023 and the results have been shared with the Air Quality & Aerosol Metrology Group to support the production of the national bias adjustment factors.

Progress with Measures

Wirral Council has taken forward a number of direct measures during the current reporting year of 2023 in pursuit of improving local air quality. Details of all measures completed, in progress or planned are set out in Table 2.2. Forty-four measures are included within Table 2.2, with the type of measure and the progress Wirral Council have made during the reporting year of 2023 presented. Where there have been, or continue to be, barriers restricting the implementation of the measure, these are also presented within Table 2.2.

More detail on these measures can be found in their respective Action Plans and Strategies.

* City Region Sustainable Transport Settlement (CRSTS) 2022/23 to 2026/27
* Combined Authority Transport Plan (CATP) programme for 2024/25
* Cool2 Climate Change Strategy 2019
* Liverpool City Region Road Safety Strategy 2022
* Wirral Community Safety Strategy 2021- 2026
* Wirral working together - A Council Plan for 2023 - 2027
* Places for People Strategy 2023
* Core Active Travel Network (in development)
* Environment and Climate Emergency Action Plan 2022-23
* Development and Regeneration Strategy for Wirral 2021-37
* Parking Strategy 2023
* The Draft Local Plan 2025-2040
* Electric Vehicle Infrastructure Strategy (in development)

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.

Bus Franchising

On 6 October 2023, the Liverpool City Region Combined Authority (LCRCA) took the decision to franchise the bus network in the Liverpool City Region, following a large-scale public consultation and an independent audit of the bus franchising assessment.​ Under a franchised system the LCRCA will specify the routes, timetables, and fares, with bus services operated by private companies following a competitive tendering process. ​This is the model currently in operation in London and introduced in Manchester in 2023. ​

Under a franchised network, bus services will be divided into geographical tender rounds inviting operators to run bus services under contract. Current plans see the first franchised service go live in September 2026 with the transition to franchising to be complete by end November 2028.

Bus Service Improvement Plan (BSIP) delivery

Liverpool City Region Combined Authority (LCRCA) was informed on 07 December 2023 that an indicative amount of £8,825,000 of revenue funding had been allocated from BSIP Phase three to support the delivery of our local Bus Service Delivery Plan.  This funding is in addition to existing Phase one BSIP funding allocation of £12,294,398 and Phase two (BSIP+) funding allocation of £6,238,236.

Originally introduced with BSIP funding, the £2 fare remains available for bus users across the Liverpool City Region.

The Bus Alliance

The LCRCA formed the Bus Alliance 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. The decision to franchise a Bus Alliance Transition Agreement is under development.

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. Further details regarding parking facilities are available by visiting [Merseyrail’s website](https://www.wirral.gov.uk/parking-roads-and-travel/parking/where-can-i-park-wirral/park-and-ride).

Planning

* Planning Policy

The Unitary Development Plan (UDP) as saved by a direction issued by the Secretary of State on 18 September 2007, along with the Joint Waste Plan for Merseyside & Halton (adopted 18 June 2013) and Neighbourhood Plans for Hoylake and Devonshire Park 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. The UDP can be viewed via the following link: <https://www.wirral.gov.uk/planning-and-building/local-plans-and-planning-policy/local-plans/unitary-development-plan/written>

Planning for both residential and industrial developments have a significant impact in air quality.  By being involved at the pre-application 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 NPPF also states in paragraph 180 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 in paragraph 192 the importance of planning policies and decisions sustaining and contributing towards compliance with the relevant limit values or national objectives for pollutants and the cumulative impacts on air quality from individual sites in local areas.  Opportunities to improve air quality or mitigate impacts should be identified, such as through traffic and travel management, and green infrastructure provision and enhancement. So far as possible these opportunities should be considered at the plan-making stage, to ensure a strategic approach and limit the need for issues to be reconsidered when determining individual applications.

To assist on the implementation of the NPPF, National Planning Policy Guidance provides additional guidance on how planning can take account of the impact of new development on air quality.

* Emerging Wirral Local Plan 2025-2040

The Wirral Local Plan 2025-2040 will, once adopted, replace the Unitary Development Plan and will provide the framework for planning decisions in the Borough for a fifteen-year period.  The Submission Draft Local Plan is currently undergoing Examination in Public. The next stage will be consultation on Main Modifications in summer of 2024 following which it is hoped to adopt the Local Plan by the end of 2024/early 2025. The Submission Draft Local Plan can be viewed at the following link: <https://www.wirral.gov.uk/planning-and-building/local-plans-and-planning-policy/wirrals-new-local-plan/new-local-plan>

An [Air Quality Modelling Study](https://www.wirral.gov.uk/sites/default/files/all/planning%20and%20building/Local%20plans%20and%20planning%20policy/Examination%20Library/8.%20Environment%20and%20Climate%20Change/ECC18%20Wirral%20Local%20Plan%20Air%20Quality%20Study%202021.pdf) 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 emerging 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](https://www.wirral.gov.uk/planning-and-building/local-plan-examination#anchor5) (Development and Regeneration Strategy – Homes) and [WS9](https://www.wirral.gov.uk/planning-and-building/local-plan-examination#anchor5) (Strategy for Transport) to reduce the need to travel and support active travel to reduce the impact of traffic flows on local communities.

Provision of Active Travel Infrastructure

In Wirral, to date, there are approximately ninety-five miles of cycle lanes, approximately 4 miles of segregated cycle lanes on highways and approximately twenty-three miles of traffic free cycle routes away from the highway.

In recent years several new schemes have been installed including segregated routes on Old Chester Road in Rock Ferry/New Ferry and Fender Lane between Bidston and Moreton which were both installed using DfT Active Travel Funding (Tranche one) scheme. The Harrison Drive / Bayswater Rd scheme in New Brighton has also recently been completed in January 2024 supported by DfT Active Travel Fund Tranche 2.

Two further active travel schemes are currently on site in Birkenhead Town Centre, Conway Street/Europa Boulevard and Grange Road/Charing Cross/Grange Road West. These schemes are both supported by Future High Street Funding as well as Active Travel Funding and will provide high quality pedestrian and cycle links in the town centre linking to the rail and bus stations as well as the key retail areas.

Public Rail Transport Improvements

Fully-electric battery-power trains are now in use on the Wirral line and within the Liverpool City Region. Using sliding step-technology, these trains are some of the most accessible and sophisticated trains on the UK rail network and are the latest step towards the Mayor’s commitment to deliver a London-style integrated transport network for our city region.

Combined Authority Transport Plan Programme (CATP)

In 2022, the City Region Sustainable Transport Settlement (CRSTS) awarded funding to Wirral Council. All the proposed programme of works set out in the 2024/25 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. Harmful emissions can be reduced, by encouraging and enabling people to travel more on foot and by cycle, instead of by private car. Promoting active travel can result in reduced emissions of Nitrogen Dioxide (NO2), particulate matter (PM) and Carbon Dioxide (CO2), helping to tackle climate change and improve air quality.

Network Management Plan

The vision of this Network Management 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;
* Fewer people using their cars, especially for short journeys;
* Fewer accidents and injuries on our roads;
* Fewer cars on our roads;
* Fewer emissions from cars, buses and lorries; and
* Less congestion and delay.

This will be achieved by the following:

* Residents, businesses and visitors will be engaged through consultations, forums and user groups and we will work in partnership;
* We will use engineering to improve our road networks, to build new cycle routes, improve pedestrian facilities and take advantage of new technology to make it easier to travel efficiently, safely and sustainably;
* People will have greater confident to change their travel habits and try healthy, environmentally friendly ways of getting around;
* Residents, business and visitors will be enabled to know how to get around and where to find information; and
* Enforcement will be required where people do not comply with the driving laws, or do not consider other road users in their driving or parking habits.

Places for People - Wirral Active Travel Strategy

The Places for People Wirral Active Travel Strategy has been approved by Committee in January 2024. The strategy sets out our ambition to put walking, cycling and beautiful places at the heart of our communities, through smarter investment in better active travel infrastructure in order to create places where people and communities can flourish. To support the delivery of the strategy we are developing a Core Active Travel Network (CATN) which will guide where infrastructure will be delivered and how that delivery will be prioritised.

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

The Council’s Road Safety Team support schools with safe sustainable travel and active travel initiatives. Cycle Training is offered to all Wirral Schools.  Bikeability level one and two combined sessions, are aimed at year five and six pupils and are provided by the Bikeability provider selected by the Liverpool City Region (LCR). The road safety team actively advertise and signpost these sessions to all Wirral schools by several means, including the use of a school road safety newsletter. There is also "Learn to Ride" sessions which are for early primary school ages, and "Own the Ride" sessions for late secondary/6th form, also run by Bike Right and funded by LCR.  These provisions promote safe active travel for pupils on the journey to and from school.

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. Surveying the school community helps us to understand the barriers to safe active travel and an action plan to address the issues is implemented through capital measures, active travel weeks, park and stride sites as a few of the potential solutions.

Two Active Travel Officers have 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. Schools who have achieved Modeshift accreditation currently include thirteen at green status and one at bronze. A number of other schools have been submitted and are awaiting accreditation status.

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 schemes have been made permanent.

Wirral Road Safety Plan

A Wirral Road Safety Plan, has been developed, which sits under the Liverpool City Region 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. For the full programme delivery, please refer to the Road Safety Plan where we set out our engagement for all road users. Examples of some of the projects that are running include Mind Your Business, Park and Stride, a visibility campaign, Active Travel Week, and educational activities 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](https://www.rac.co.uk/drive/advice/know-how/euro-emissions-standards/)) is available on site for drivers to refill their vehicles when necessary. In addition, regular emissions tests of vehicles are undertaken during routine servicing.

A review of the council fleet has taken place with the aim of consolidating the fleet and introducing electric vehicles across the various services. The Mayor has a fully electric car, and an electric van is now in use at Birkenhead park.

Several E-cargo bikes are now also used in parks, and they have covered a total of 359.9 miles in the last financial year 2023/24.

* 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). Biffa have recently complete a three-month hydro-treated vegetable oil (HVO) trial using three of their vehicles.

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 Infrastructure (EVCI)

The Liverpool City Region Combined Authority (LCRCA) has successfully obtained £9,647,000 Local Electric Vehicle Infrastructure (LEVI) Capital funding to invest into EVCI via a regional contract. Wirral Council are working with Local Authorities across the LCR to provide a sustainable electric vehicle charging infrastructure across the Liverpool City Region, which is easy to use, inclusive and accessible to use. The funding will be used to leverage private investment and is planned to deliver 600-800 standard chargers and 1000-1300 fast chargers within the LCR. To date in Wirral, there are fifty three publicly owned electric vehicle charging points available to the public.

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](https://www.wirral.gov.uk/about-council/climate-change-and-sustainability/climate-change-action) in July 2019.  A new climate change strategy, [Cool 2](https://www.wirral.gov.uk/about-council/climate-change-and-sustainability/consultation-new-cool-2-climate-change-strategy), 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 Policy and Environment and Climate Emergency Action Plan (ECEAP), which set the ambitious but achievable target of the Council and its entity being ‘net carbon neutral’ by 2030. The ECEAP was developed in 2020 and is designed to drive fundamental change to the way the Council operates, makes decisions, and provides services. The action plan has recently been reviewed and aligned to complement, but not duplicate, the developing Air Quality Implementation Plan which will deliver on three of the thirteen ECE policies;

* Supporting an increase in the use of ‘active travel’
* Working to support an increase in public transport use
* Securing investment to support the necessary shift to ultra-low carbon vehicles.

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.

Secure Cycle Storage

Secure [cycle storage](https://www.merseyrail.org/plan-your-journey/getting-to-our-stations/bike.aspx) 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.

The council are working with the CA to develop a pipeline of cycle storage requests across the region which can be used to support the roll out of new infrastructure when funding is acailable and as part of new infrasturture schemes. In addition though the planning process will also ensure the provision of high quality storage infrastructure in all new developments.

Highway Maintenance

Road surface wear can result in the release of particulate matter. A team of fifteen council inspectors routinely check every road in Wirral on an annual basis, with some roads being inspected more frequently due to their location. The Councils maintenance programme invests in our roads to fix problems with pot holes and other surface issues. Roads in the programme are chosen for repair after surveys have been completed and put together with reports from highways inspectors, councillors and residents.

In March 2024, a total budget of £7.2 million was agreed over the next financial year to tackle potholes and other issues with the road in Wirral. This budget includes a £1.3 million UK government pothole fund.

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 sixty crossing patrol sites.

Anti-idling Actions and Wirral Clean Air Campaign

Wirral Council formally adopted the Road Traffic (Vehicle Emissions) (Fixed Penalty) (England) Regulations 2002, to address localised air pollution hot spots. Enforcement officers 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.

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. Wirral Council intend to refresh and relaunch this campaign during 2024.

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.

Phase one and two of the implementation of the borough wide 20mph speed limit project are now complete. Plans to move ahead with phases three and four have been approved by committee. The Council expects the roll out to be complete by 2025.

“By Ours” Bebington Project

Sustrans and local stakeholders have been working to develop a 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.

A series of recomendations has been made by Sustans which will be reported to committee during Summer 2024.

Mersey Ferries

One new-build ferry, which will be greener and more energy efficient, has been ordered by the LCRCA from Cammell Laird / Damen. Extensive refurbishment has been undertaken at Seacombe Ferry Terminal and refurbishment is planned to the landing stages at Woodside Ferry Terminal.

Project to Reduce Particulate Emissions from Domestic Burning.

Wirral Council obtained funding from DEFRA in 2023, 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 is enabling Wirral to work towards meeting the targets for PM2.5 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 projects objectives are to

* reduce particulate matter from domestic burning at source, through an information and education campaign alongside a review of legislation and enforcement options.
* 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.

Work on the [‘Breathe Better’](https://www.wirral.gov.uk/breathebetter) project commenced in 2023, with a campaign, which focussed mainly on domestic wood burning. Following this, a further campaign was launched with messages about indoor air quality at home, avoiding peak traffic times and walk along quieter routes, away from the kerb**, turning your engine off when you are s**tationary in your car, and where you can, walk, wheel, or take public transport as an alternative to driving.

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 2022, and 2023, to assessed whether monitoring was still being undertaken in the most relevant locations.

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 Air Quality Steering Group

The Wirral Air Quality Steering 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.

Taxi Licensing

Wirral Council has a Policy relating to the age of licensed vehicles. Once private hire vehicles reach six years old, they are only issued with a six-month licence which means an MOT and Compliance Test is required every six 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 ten years old it would not normally be granted a further licence.

Once hackney carriage vehicles reach ten years old, they are only issued with a six-month licence which means an MOT and Compliance Test is required every six-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.  A review of licensing criteria is currently in progress.

The Air Quality (Taxis and Private Hire Vehicles Database) (England and Wales) Regulations 2019 came into force on 1 May 2019.  [The 2019 Order](https://www.legislation.gov.uk/ukdsi/2019/9780111180112/contents) 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.

The objective of the Walk To School Outreach (WTSO) project is to support the government to reach its target of fifty-five percent of children walking to school by 2025.

WOW in Wirral is encouraging more children and families to think about how they travel, reducing congestion outside school gates, increasing walking rates and instilling healthy habits. The aim is to achieve an eight percentage point modal shift to ‘walk all the way’ journeys with the participating schools through WOW, the walk to school challenge.

Pupils self-report how they get to school every day using the interactive Travel Tracker. If they travel sustainably at least one day a week for a month, they get rewarded with a collectable WOW badge. Eight schools in Wirral (twenty eight in the whole of Liverpool City Region) were fully funded in 2023 - 2024 and had support from a dedicated Living Streets coordinator to guide them through set up, launch and continued engagement.

Participating in WOW saw these eight schools increase walking/wheeling all the way to school by nine percentage points (and a decrease in being driven all the way of twenty-seven percentage points).

Newer schools see the biggest impact in positive modal shift towards active journeys. Schools that were no longer eligible for full funding in 2023 - 24 were offered free use of Travel Tracker so they could continue logging their journeys. A further five Wirral schools that took part last year made use of this offer and were well engaged all year.

Further information on support for schools and families please is available by visiting the following website [www.LivingStreets.org.uk](http://www.livingstreets.org.uk/).

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

Town Centre and Council Workplace and Residential Travel Planning

As part of the planning process for the development of the town centre workplace and residential travel plans will be required, including on behalf of the council for the new ‘Mallory’ Council building, to ensure the Council leads by example and encourage and enable a transition to more sustainable modes of travel where possible, to reduce reliance on cars, and single car occupancy use.

Participations in National Clean Air Day 2024

Environmental Health will be hosting an engagement event on Clean Air Day 2024, to provide information to our residents on wood burning and its impact on air quality, indoor air quality, the impact of idling engines on air quality, our ‘Breathe Better’ campaign, and general information on the air quality in Wirral. The stall will be located at West Kirby Concourse in the morning, and Birkenhead Market in the afternoon. Feedback on the event will be provided in ASR 2025.

Air Quality Implementation Plan Working Groups

Five working groups have now been set up to drive forward the implementation plan. These groups will meet quarterly to ensure that actions outlined in the plan are being progressed and completed and to identify any issues that may impact progress.

Transport Planning

The Council is developing a strategy, which sets out how transport, movement and connectivity will play a key role in supporting Wirral’s future.

This strategy will support the delivery of the wider Regeneration Framework with a focus on facilitating active travel and public transport. The focus of the strategy will be to ensure that we are working towards creating a sustainable and inclusive borough which supports our residents to have access to opportunities and to live healthy lives.

Combined Authority Local Transport Plan

The LCRCA is currently developing the Local Transport Plan (LTP) 4 for the region which will set out plans, policies and ambitions for transport services and investment in the Liverpool City Region until 2040.  It is planned to consult on the LTP4 Preferred Strategy in Summer 2024 before finalising and adopting the new Local Transport Plan 4 for Liverpool City Region by end of 2024.

Core Active Travel Network

A Core Active Travel Network (CATN), is currently in development and will be the delivery part of the Places for People Strategy. It will show where infrastructure is needed, what type of infrastructure and priorities for delivering it. The CATN will be a flexible, evolving document that responds to changes in policy, opportunities and demand. Together, the Places for People Strategy and CATN will provide the framework for investment decisions. The CATN will be the subject of public and stakeholder consultation in Summer 2024.

Walking and Cycling Infrastructure

In 2017 the LCRCA developed a Local Journeys Strategy. This strategy (2017) set out the evidence base for increasing sustainable travel in the LCR. Following the development of that strategy the LCRCA also developed an Local Cycling Walking Infrasturcture Plan (LCWIP) which is overarching implementation plan to support the Local Journeys Strategy. It demonstrates the LCR plan to build a network of cycling and walking routes with the aim of making it more feasible and desirable for people to walk or cycle journeys instead of using unsustainable modes.

The LCRCA LCWIP identified several routes within Wirral which will be required to go through the development of a business case to access funds which will require optioneering and stages of design including public consultation.

The first route ‘Birkenhead to Liscard’ is a 3.5 mile active travel route which is at outline design stage and has undergone public consultation in Autum/Winter 2023, the outcome of which will be reported to committee in July 2024.

The development of a business case to access funds which will require optioneering and stages of design including public consultation.

The first route ‘Birkenhead to Liscard’ is a 3.5 mile active travel route which is at outline design stage and has undergone public consultation in Autum/Winter 2023, the outcome of which will be reported to committee in July 2024.

Wirral Councils’s priorities for the coming year are:

* To continue to robustly monitor air quality in the borough, to ensure the concentrations are within the EU objectives.
* To drive forward an implementation plan for the new Wirral Air Quality Strategy, which was implemented in December 2023. This will detail the work that is planned and the work that is underway to address the identified priority areas for action.
* To continue the DEFRA funded ‘Breathe Better’ campaign project to Reduce Particulate Emissions from Domestic Burning and provide residents with the knowledge to protect themselves from air pollution through delivery of an information and awareness campaign.
* To fully utilise the planning system, in accordance with guidance, to effectively promote air quality.
* To continue to robustly monitor air quality in the borough, to ensure the concentrations are within the National objectives.
* 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 and enable increased number of journeys to be undertaken by walking, wheeling and cycling and to make public transport cleaner and easier to use.
* 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, ‘Breathe Better’ which aims to raise awareness of air pollution and inform Wirral’s residents about best burning practices.
* To refresh and relaunch Wirrals ‘You’re the key’ campaign, to target idling vehicle engines and help 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.
* To capitalise and support new and changed behaviours e.g. increased numbers of journeys being undertaken by active modes and public transport, which may positively influence better air quality.

Wirral Council worked to implement these measures in partnership with the following stakeholders during 2023:

* 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 2.2 – Progress on Measures to Improve Air Quality

| Measure No. | Measure Title | 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 |  | NO |  |  | Completed | Reduced vehicle emissions, public engagement, behaviour change |  | Arriva buses operate 44 hybrid buses cross water from Liverpool to Wirral |  |
| 2 | Bus Franchising | Promoting Travel Alternatives | Other |  |  | Merseytravel |  | NO |  |  | Implementation | Reduced vehicle emissions | First franchise service live in 2026 | Decision made to franchise bus network in 2023. With current plans, the first franchised service go live in September 2026 with the transition to franchising to be complete by end November 2028 |  |
| 3 | Bus Alliance | Promoting Travel Alternatives | Other | 2016 |  | Merseytravel |  | NO |  |  | Implementation | Reduced vehicle emissions | Alliance Formed | 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. |  |
| 4 | Bus Service Improvement Plan Delivery | Public Information | Other | 2023 |  | LCRCA |  | NO | Funded |  | Implementation | Reduced vehicle emissions | Completed Improvements | LCRCA informed Dec 23 that an indicative amount of £8,8 mill revenue funding allocated from BSIP Phase three for delivery of our local Bus Service Delivery Plan. £2 fare remains available for bus users across LCR |  |
| 5 | Park and ride | Alternatives to private vehicle use | Rail based Park & Ride | 2018 |  | Wirral Council and Merseytravel | Merseytravel and DFT | NO |  |  | Completed | Reduce exposure to relevant emissions |  | Park and ride places provided at the majority of Wirral’s train stations. |  |
| 6 | Planning Policy | Policy Guidance and Development Control | Air Quality Planning and Policy Guidance | 2021 | 2037 | Wirral Council | Wirral Council | NO | Not Funded |  | Implementation | Reduce exposure to relevant emissions |  | Application of relevant planning guidance during the planning application process for New Developments and Regeneration Projects. UDP adoped 2000, Submission Draft Local plan currently at Examination. | A public examination to test the legal compliance and soundness of the Submission Draft Local Plan is currently being held by independent Planning Inspectors appointed by the Secretary of State |
| 7 | Emerging Wirral Local Plan | Local Plan, Policy, Guidance and Development Control | Other |  | 2025 | Wirral Council | Wirral Council | NO |  |  | Implementation | Reduce exposure to relevant emissions |  | The Submission Draft Local Plan is currently undergoing Examination in Public. The next stage will be consultation on Main Modifications in summer of 2024 following which it is hoped to adopt the Local Plan by the end of 2024/early 2025 | A public examination to test the legal compliance and soundness of the Submission Draft Local Plan is currently being held by independent Planning Inspectors appointed by the Secretary of State |
| 8 | Provision of Active Travel Routes (Various) | Promoting Travel Alternatives | Promotion of cycling | 2017 | 2027 | Wirral Council / LCRCA | Dept of Transport, SUD (EU), Transforming Cities, DLUHC | NO | Partially Funded |  | Completed | Reduce exposure to vehicle emissions |  | Tranche 1 schemes completed (Fender lane and Old Chester road) Tranche 2 Harrison Drive / Bayswater Rd ATF2 scheme was completed in Jan 24, Beaufort Road SUD scheme was completed in Apr 23 | Resources support of Active Travel Schemes can be mixed. |
| 9 | Public Rail Transport Improvements | Transport Planning and Infrastructure | Other |  | 2023 | Mersey Travel |  | NO |  |  | Implementation | Reduce Vehicle Emissions |  | Full electic battery operated trains now in use on Wirral line |  |
| 10 | Combined Authority Transport Plan Programme | Transport Planning and Infrastructure | Other | 2024 | 2025 | Wirral Council | Dept for Transport | NO |  |  | Implementation |  |  | In 2022 CRSTS awarded funding to Wirral Council. Programme of works for 2024/25 |  |
| 11 | Local Transport Planning | Promoting Low Emission Transport | Other | 2021 | 2025 | Wirral Council | Wirral Council / LCRCA | NO |  |  | Implementation | Reduce Vehicle Emissions | The council is developing a strategy for Wirral. | The Council is developing a Framework for Birkenhead 2040 which sets out how transport, movement and connectivity will play a key role in supporting Wirral’s future. |  |
| 12 | Combined Authority Local Transport Plan | Promoting Low Emission Transport | Other | 2021 |  | LCRCA | LCRCA | NO |  |  |  |  |  | The LCRCA is currently developing the Local Transport Plan (LTP) 4 for the region up to 2040.  It is planned to consult on the LTP4 Preferred Strategy in Summer 2024 before finalising and adopting LTP4 by end of 2024 |  |
| 13 | Network Management Plan | Traffic Management | Other |  |  |  |  | NO |  |  |  |  |  | UTC, Congestion management, traffic reduction, encourages active travel and use of public transport. |  |
| 14 | Places for People- Wirral Active Travel Strategy | Promoting Travel Alternatives | Promotion of cycling |  | 2024 | Wirral Council | LCRCA | NO | Funded |  | Implementation | Public Engagement / Behaviour change |  | The places for People Active Travel Strategy has been presented to committee and has been approved, the next stage will be to develop the Core Active Travel Network (CATN). | Resources- Public support of Active Travel Schemes can be mixed. |
| 15 | Active Travel Forum | Promoting Travel Alternatives | Promotion of cycling |  |  | Wirral Council |  | NO |  |  | Implementation | Public Engagement / Behaviour change |  | Promoting active travel with various stakeholders across the borough. |  |
| 16 | Cycle Training for Schools | Promoting Travel Alternatives | Promotion of cycling |  |  | 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 |  |
| 17 | Modeshift Stars | Promoting Travel Alternatives | Promotion of walking | 2021 | 2026 | LCRCA/ Wirral Council | LCRCA | NO | Funded | < £10k | Implementation | Public Engagement / Behaviour change | Number of schools accredited, and level of accreditation submitted. | 2 Active Travel Officers works with schools delivering the School Street initiative and Modeshift. Accreditation: 13 green and 1 bronze. | Scheme progressing well, Active travel Officers in post funded until January 2026 |
| 18 | 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. | Total of 6 School Street complete. 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. |  |
| 19 | Wirral Road Safety Plan | Other | Other | 2022 | Sep-23 | Wirral Council | N/A | NO | Not Funded |  | Implementation | Strategy / Policy | Strategy published and updated annually. | Wirral Road safety plan adopted Sept 2023 |  |
| 20 | Wirral Council Fleet | Promoting Low Emission Transport | Company Vehicle Procurement -Prioritising uptake of low emission vehicles |  |  | Wirral Council / Biffa | Merseytravel, OLEV | N/A |  |  |  | Reduced vehicle emissions |  | Green transport review completed for Council fleet. Refuse vehicles in use are all Euro 6 standard |  |
| 21 | Permitted Processes | Permitted processes | Environmental Permits | Other | 2014 |  | Wirral Council | NO | Not Funded |  |  |  | Reduced emissions |  | Env Health has issued and monitors 48 permits |
| 22 | Electric Vehicle Charging Network | Promoting Low Emission Transport | Other | 2023 |  | Wirral Council / LCRCA | LCRCA | NO | Funded | £1 million - £10 million | Implementation | Reduce vehicle emissions | Implementation of EVI plan. Installation of EVCI. | EVI plan introduced. | £9,6 million LEVI Capital funding to invest into EVCI. Currently 53 public charging points. |
| 23 | Wirral Climate Change Strategy | Policy Guidance and Development Control | Other policy | 2019 |  | Wirral Council | DFT, Energy Saving trust | NO |  |  |  | Reduced vehicle emissions |  | Developed in 2020, to drive fundamental change to the way the Council operates, makes decisions, and provides services. The action plan has recently been reviewed and aligned to complement, but not duplicate, the developing Air Quality Implementation Plan |  |
| 24 | JSNA | Public Information | Via the Internet | 2019 |  | Wirral Public Health | N/A | NO |  |  | Completed | Public engagement |  | Updated in 2022 |  |
| 25 | Secure Cycle Storage | Promoting Travel Alternatives | Promotion of cycling |  |  | Wirral Council / LCRCA | LCRCA | NO | Funded |  | Implementation | Reduced vehicle emissions |  | Secure cycle storage offered at most train stations in Wirral. | Availabilty of Funding |
| 26 | Highway maintenance | Transport Planning and Infrastructure | Other | N/A |  | Wirral Council | Dept of Transport | NO |  |  | Implementation | Reduced vehicle emissions |  | In March 2024, a total budget of £7.2m was agreed over the next financial year to tackle potholes and other issues with the road in Wirral. This budget includes a £1.3m UK government pothole fund. |  |
| 27 | Parking Controls | Traffic Management | Other |  |  | Wirral Council / Merseyside Police |  | NO |  |  | Implementation |  |  | Council Enforcement Officers and CCTV vehicle enforce illegal parking, police enforce dangerous parking around schools to support active travel. |  |
| 28 | School Crossing Patrols | Promoting Travel Alternatives | Promotion of walking |  |  | Wirral Council | Wirral Council | NO |  |  | Implementation | Public Engagement/ Behaviour Change | Number of sites operating | SCP services is delivered across the borough and assists school/local communities to walk and scoot to school. |  |
| 29 | Anti idling and Clean Air Campaign | Transport Planning and Infrastructure | Other | 2017 |  | Wirral Council | Wirral Council | NO | Not Funded | < £10k |  | Reduced vehicle emissions |  | Adoption of powers to issue FPN's. Educational campaign launched June 2019 Wirral Council intend to refresh and relaunch this campaign during 2024. | Soft enforcement of anti-idling. |
| 30 | 20 MPH Roads | Traffic Management | Reduction of speed limits, 20mph zones | 2022 | 2025 | Wirral Council | LCRCA | NO | Funded | £100k - £500k | Implementation |  |  | Phase 1 and 2 of the implementation of the borough wide 20mph speed limit project are now complete. Plans to move ahead with phases 3 and 4 have been approved by committee. The Council expects the roll out to be complete by 2025. |  |
| 31 | “By Ours" Bebington Project | Promoting Travel Alternatives | Other | 2021 | 2023 | Wirral Council / Sustrans / Freshfield Foundation | Freshfield Foundation | NO | Partially Funded | £1 million - £10 million | Implementation | Public engagement, behaviour change |  | Community initiative progressing, schools have been consulted and community engagement. Suggestions are currently being considered before going to committee. | Resources for delivery would be subject to further business case development. |
| 32 | Mersey Ferries | Promoting Low Emission Transport | Other | 2023 | 2024 | LCRCA / Cammel Lairds | LCRCA | NO | FUNDED |  | Implementation | Reduce vehicle emissions |  | One new-build ferry, which will be greener and more energy efficient, has been ordered by the LCRCA from Cammell Laird / Damen. Extensive refurbishment has been undertaken at Seacombe Ferry Terminal and refurbishment is planned to the landing stages at Woodside Ferry Terminal |  |
| 33 | Domestic Burning Project | Public Information | Via the Internet | 2023 | 2025 | Wirral Council / Hitch | Defra Air Quality Grant | YES | FUNDED | £50k-100k | Implementation | Public Engagement/ Behaviour Change | Number of website visits; Social media engagement insights; number of burning related complaints; number of residents engaged in survey, Number attending evaluation workshops, % of indoor and outdoor burners, % following best burning practices | Campaign materials created and used in winter 2023. Will be used again for the re-launch winter 2024. Digital evaluations completed for the domestic burning and breathe better campaign. Insights will be included in final evaluation. Draft outdoor burning digital plan awaiting approval for spring / summer 2024. |  |
| 34 | Air Quality Monitoring | Other | Other | 2023 | 2024 | Wirral Council | N/A | NO | Not Funded | < £10k | Completed | Monitoring |  | Total 56 passive diffusion tube monitoring sites, 2 AURN's, 5 indicative monitors located in Wirral for 2023. |  |
| 35 | Regional AQ meetings | Other | Other | 2002 |  | LCRCA and Cheshire East and Cheshire west | N/A | N/A | Not Funded |  | Implementation | Reduced emissions |  | Ongoing |  |
| 36 | Air Quality SteeringGroup | Other | Other | 2017 |  | Wirral Council | NO | NO |  |  |  | Reduced emissions |  | Ongoing |  |
| 37 | Taxi Licencing | 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 |  |
| 38 | WOW walk to school scheme | Promoting Travel Alternatives | Promotion of walking | 2019 |  | Living streets/Wirral Council | DFT | NO | Funded |  | Implementation | Public engagement. Behaviour change | Increase in numbers of children walking, cycling, scooting to school. | Support schools in Wirral to encourage active travel | Dependant on funding. |
| 39 | Town Centre and Council Workplace and Residential Travel Planning | Promoting Travel Alternatives | Workplace Travel Planning | 2023 | 2024 | Wirral Council |  | NO | Partially Funded | £50k - £100k | Implementation | Reduce vehicle emissions | Plan adopted | 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, which opening in 2024. | Temporary funding identified for member of staff to oversee elements of this work |
| 40 | National Clean Air Day 2024 | Public Information | Other |  | 2024 | Wirral Council | N/A | NO | Not Funded |  | Planning | Public engagement, behaviour change |  | Public engagement via an information stall at 2 locations |  |
| 41 | Implementation Plan Working Groups | Other | Other |  | 2028 | Wirral Council |  | NO | Not Funded |  | Implementation |  |  |  |  |
| 42 | Transport Plannining | Transport Planning and Infrastructure | Other | 2021 | 2024/25 | LCRCA | LCRCA | NO |  |  |  | Reduced vehicle emissions |  | In 2022, the City Region Sustainable Transport Settlement (CRSTS) awarded funding to Wirral Council. All the proposed programme of works set out in the 2024/25 CRSTS CATP programme generally have environmental benefits |  |
| 43 | Combined Authority Local Transport Plan | Transport Planning and Infrastucture | Other | 2024 | 2024 | LCRCA |  | NO |  |  | Implementation |  | Adoption of plan | LCRCA currently developing LTP 4 for the region. It is planned to consult on the LTP4 Preferred Strategy in Summer 2024 . Adoption planned by end of 2024. |  |
| 44 | Core Active Travel Network | Promoting Travel Alternatives | Other |  |  | Wirral Council | Wirral Council | NO | Not Funded |  | Planning | Reduce Vehicle Emissions | Plan Implemented | In development. Will deliver the places for people strategy it will provide framework for investment decisions. |  |
| 45 | Local Cycling and Walking Infrastructure Plan (LCWIP) | Promoting Travel Alternatives | Promotion of cycling |  |  | Wirral Council /LCRCA | Dept for Transport / Active Travel England | NO | Partially Funded |  | Planning |  |  | The initial route identified is Birkenhead to Liscard. Outline design completed, and public consultation undertaken in autumn/winter 2023. To be reported to committee in July 2024. | Funding not yet secured as subject to business case. Resources- Public resource for active travel schemes can be mixed. |

* 1. PM2.5 – Local Authority Approach to Reducing Emissions and/or Concentrations

As detailed in Policy Guidance LAQM.PG22 (Chapter 8) and the Air Quality Strategy[[6]](#footnote-7), local authorities are expected to work towards reducing emissions and/or concentrations of fine particulate matter (PM2.5). There is clear evidence that PM2.5 (particulate matter smaller than 2.5 micrometres) has a significant impact on human health, including premature mortality, allergic reactions, and cardiovascular diseases.

[The Public Health Outcome Framework (PHOF)](https://fingertips.phe.org.uk/search/fraction%20of%20mortality%20attributable%20to%20particulate%20air%20pollution) 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 and the North West average. The most up to date figures (2022) show that the England average is 5.8%, the Northwest being 5.6% and Wirral’s average is 5%.

The data obtained from the Tranmere AURN in relation to PM2.5 demonstrates that the 2023 concentration of PM2.5 was 6.6µg/m3, below the Target Value of 10µg/m3. It is above the World Health Organisation guideline level of 5µg/m3.

The Environmental Targets (Fine Particulate Matter) (England) Regulations 2023 has implemented new legally binding PM2.5targets, each with an interim target

* 10 μg/m3 annual mean concentration PM2.5nationwide by 2040, with an interim target of 12 μg/m3 by January 2028
* 35% reduction in average population exposure by 2040, with an interim target of a 22% reduction by January 2028, both compared to a 2018 baseline

Wirral Council is taking the following measures to address PM2.5:

New Measures

* **Air Quality Strategy**. The Council has implemented an Air Quality Strategy 2024 - 28 for Wirral.
* **Air Quality Implementation Plan**. This will detail the work that is planned and the work that is underway to address the identified priority areas for action.
* **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 PM2.5 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**. These are designated areas where smoke must 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 PM2.5’s, the designation of these smoke control areas helps to reduce the release of PM2.5’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 provide advice 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 is taken where it is deemed appropriate.

Wirral Council intends to revoke all existing smoke control areas and implementing one smoke control area that covers the whole of Wirral. The action has been approved by committee and public consultation is currently in process. It is envisaged that the new smoke control area will be implemented late 2024 / early 2025.

* **Highway improvement**

[Two major highway improvement schemes](https://wirralview.com/sustainable-environment/major-active-travel-schemes-set-begin-birkenhead-town-centre) that complement the wider Birkenhead regeneration are planned for 2024 - 2025.

The first scheme covers the area close to Conway Park railway station and Birkenhead bus station. The second scheme is taking place around Charing Cross and the junction with Grange Road and Grange Road West

Both schemes are designed to make the areas more attractive and improve accessibility and safety for all road users, including cyclists and pedestrians.

The funding for these works comes from the UK government’s Future High Streets Fund, part of a £25m award to Wirral, Liverpool City Region Combined Authority and Wirral Growth Company.

Existing measures

* **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).
* **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 the Public Health Team 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 Strategic Needs Assessment, which aims to describe the health implications of poor air quality in Wirral.
* **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. Local Air Quality Management also forms part of the Joint Strategic Needs Assessment (JSNA), which aims to describe the health implications of poor air quality in Wirral. [Wirral Council’s JSNA on outdoor air quality](https://www.wirralintelligenceservice.org/jsna/environmental-health-health-protection/) provides a summary of key pollutants, the impact on health and priority actions in Wirral. The Air Quality JSNA was updated in 2022.
* **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 (PM10 and PM2.5) and nitrogen dioxide (NO2) from the transport network, has previously been undertaken to support the Local Plan.
* **Working with External Partners**. The Council will also continue to work with UKHSA, neighbouring councils, John Moores University and other key stakeholders to optimise opportunities, and develop interventions, to improve air quality.

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

This section sets out the monitoring undertaken within 2023 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 2019 and 2023 to allow monitoring trends to be identified and discussed.

* 1. Summary of Monitoring Undertaken

### Automatic Monitoring Sites

Wirral Council undertook automatic (continuous) monitoring at two sites during 2023. Table A.1 in [Appendix A](#_Appendix_A:_Monitoring) 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 are available through the [UK-Air website](https://uk-air.defra.gov.uk/interactive-map).

Maps showing the location of the monitoring sites are provided in [Appendix D](#_Appendix_E:_Map(s)). Further details on how the monitors are calibrated and how the data has been adjusted are included in [Appendix C](#_Appendix_C:_Supporting).

Wirral Council undertook automatic monitoring (continuous) monitoring using ‘indicative’ real time sensors at five sites during 2023. These monitors were updated to MCERT standard at the beginning of 2024.

### Non-Automatic Monitoring Sites

Wirral Council undertook non-automatic (i.e. passive) monitoring of NO2 at 56 sites during 2023. Table A.2 in [Appendix A](#_Appendix_A:_Monitoring) 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](#_Appendix_C:_Supporting).

* 1. 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](#_Appendix_C:_Supporting).

## Nitrogen Dioxide (NO2)

Table A.3 and Table A.4 in [Appendix A](#_Appendix_A:_Monitoring) compare the ratified and adjusted monitored NO2 annual mean concentrations for the past five years with the air quality objective of 40µg/m3. 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 2023 dataset of monthly mean values is provided in [Appendix B](#_Appendix_B:_Full). Note that the concentration data presented in Table B.1 includes distance corrected values, only where relevant.

Table A.5 in [Appendix A](#_Appendix_A:_Monitoring) compares the ratified continuous monitored NO2 hourly mean concentrations for the past five years with the air quality objective of 200µg/m3, not to be exceeded more than 18 times per year.

The conclusion drawn from the monitoring results for Wirral for 2023 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/m3 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.

A review of monitoring locations was undertaken in 2022. Following this review, forty-eight existing sites were retained for 2023, eight existing sites were removed for 2023, and six new monitoring locations were added for 2023 (NB one site has three monitoring station (triplicate) as part of a co-location study). The sites that were removed are W22, W23, W26, W30, W32, W40, W44 and W58. The new monitoring sites are W22/23, W23/23 W32/23, W44/23, W58/23 and W66 (comprising W66A, W66B and W66C). NB fifty-seven results are available for 2023, as site W09 was relocated mid way through 2023 and replaced with W09/23. Both annualised results have been reported.

Following a review of monitoring location during 2023, all fifty-six existing monitoring sites insitu in 2023 were retained for 2024. 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 2024.

There are forty-eight passive monitoring sites that have been in use between 2022 and 2023. Eight sites (17%) showed increased concentrations of Nitrogen Dioxide. Three sites (6%) have shown no change in levels. Thirty-seven sites (77%) have shown a reduction in concentrations, although it is noted that some of these reductions are very small. The site with the smallest increase in concentrations is W35, with 0.2µg/m3 increase. The site with the largest increase is site W9 (Woodchurch Road, Prenton) with 12.4 µg/m3 increase. The site with the smallest increase is site W35 with 0.2 µg/m3 increase. The site with the smallest reduction in concentrations is W52 with a 0.1µg/m3 decrease in Nitrogen Dioxide concentrations. The site with the largest reduction is W39/21 with a 2.9µg/m3 decrease.

Consent to monitor at W9 was withdrawn in July 2023, and a new monitoring site (W9/23) has been located nearby the original site, on Woodchurch Road, Prenton, to ensure we can continue to monitor at this location, particularly in light of the increase in levels detected.

There have been no exceedances of the national objective for 1-hour mean or annual mean Nitrogen Dioxide indicated by this passive monitoring during 2023. This is because no site has measures an annual mean greater than 60µg/m3, which indicates that an exceedance of the 1-hour mean objective is not likely at these sites.

## Table 3.1 – Changes in Nitrogen Dioxide Levels at Passive Monitoring Sites Between 2022 – 23

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Site** | **2022 NO2 Monitoring Result** | **2023 NO2 Monitoring Results** | **Increase / Decrease between 2022-23** | **Difference (µg/m3)** |
| W2 | 14.7 | 12.9 | Decrease | -1.8 |
| W3/19 | 21.4 | 22.1 | Increase | + 0.7 |
| W4 | 24.3 | 23.8 | Decrease | -0.5 |
| W5 | 28.3 | 27.2 | Decrease | -1.1 |
| W8 | 25.3 | 23.1 | Decrease | -2.2 |
| W9 | 19.2 | 31.6 | Increase | + 12.4 |
| W12 | 35.6 | 35.1 | Decrease | -0.5 |
| W13 | 17.3 | 17.1 | Decrease | -0.2 |
| W14/21 | 21.3 | 20.4 | Decrease | -0.9 |
| W15 | 24.5 | 24.3 | Decrease | -0.2 |
| W17 | 27.2 | 26.9 | Decrease | -0.3 |
| W18/19 | 28.5 | 27.5 | Decrease | -1.0 |
| W21 | 24.0 | 25.2 | Increase | +1.2 |
| W24 | 24.2 | 23.8 | Decrease | -0.4 |
| W25 | 22.5 | 21.2 | Decrease | -1.3 |
| W27 | 20.2 | 20.2 | No change | 0.0 |
| W28 | 21.2 | 19.9 | Decrease | -1.3 |
| W29/20 | 18.8 | 17.4 | Decrease | -1.4 |
| W31 | 30.7 | 31.2 | Increase | +0.5 |
| W33/19 | 23.3 | 23.1 | Decrease | -0.2 |
| W34/19 | 20.8 | 19.7 | Decrease | -1.1 |
| W35 | 19.1 | 19.3 | Increase | +0.2 |
| W36/21 | 23.1 | 22.4 | Decrease | -0.7 |
| W37 | 22.9 | 22.0 | Decrease | -0.9 |
| W38/19 | 22.1 | 20.8 | Decrease | -1.3 |
| W39/21 | 25.0 | 22.1 | Decrease | -2.9 |
| W41 | 15.2 | 14.0 | Decrease | -1.2 |
| W42 | 19.9 | 18.9 | Decrease | -1.0 |
| W43 | 21.8 | 20.6 | Decrease | -1.2 |
| W45 | 32.4 | 31.3 | Decrease | -1.1 |
| W47/22 | 13.5 | 13.5 | No change | 0.0 |
| W48 | 27.4 | 24.8 | Decrease | -2.6 |
| W49 | 20.4 | 20.1 | Decrease | -0.3 |
| W50 | 25.6 | 23.0 | Decrease | -2.6 |
| W51 | 13.3 | 11.6 | Decrease | -1.7 |
| W52 | 13.0 | 12.9 | Decrease | -0.1 |
| W53 | 11.0 | 10.0 | Decrease | -1.0 |
| W54 | 8.2 | 8.9 | Increase | +0.7 |
| W55 | 11.8 | 11.3 | Decrease | -0.5 |
| W56 | 11.7 | 11.5 | Decrease | -0.2 |
| W57 | 10.7 | 11.6 | Increase | +0.9 |
| W59 | 13.0 | 11.9 | Decrease | -1.1 |
| W60 | 12.9 | 15.6 | Increase | +2.7 |
| W61 | 13.9 | 12.8 | Decrease | -1.1 |
| W62 | 14.1 | 13.2 | Decrease | -0.9 |
| W63 | 16.6 | 14.4 | Decrease | -2.2 |
| W64 | 15.6 | 14.5 | Decrease | -1.1 |
| W65 | 22.6 | 22.6 | No change | 0.0 |

|  |
| --- |
|  |

When looking at longer term trends, there are twenty-two passive monitoring sites where long-term monitoring data is available. The latest 2023 monitoring results indicate that there has been a reduction in Nitrogen Dioxide concentrations in the last five years (2019 and 2023) at twenty-one sites where long-term data is available and an increase at one site. Long term data comparison is not available at all other sites, as these sites were either newly introduced after 2019 or deleted prior to 2023. Site W17, located at St Albans Road, Liscard has seen the highest reduction in Nitrogen Dioxide concentrations, with a decrease of 7.1µg/m3, whilst site W15, Arrowe Park Road, Woodchurch has seen the lowest reduction in concentrations. Only one site, W09, has shown an increase in Nitrogen Dioxide levels between 2019 and 2023, with an increase of 11.6µg/m3. Consent to monitor at site W09 was withdrawn mid-2023, and a new monitoring site has been located near by to ensure we can continue to monitor at this location.

## Table 3.2 – Changes in Nitrogen Dioxide Levels at Passive Monitoring Sites Between 2019 – 23

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Site** | **2019 NO2 Result** | **2023 N02 Result** | **Increase / Decrease between 2019-2023** | **Difference**  **(µg/m3)** |
| W2 | 18.0 | 12.9 | Decrease | -5.1 |
| W3/19 | 26.0 | 22.1 | Decrease | -3.9 |
| W4 | 29.0 | 23.8 | Decrease | -5.2 |
| W5 | 33.0 | 27.2 | Decrease | -5.8 |
| W8 | 29.0 | 23.1 | Decrease | -5.9 |
| W9 | 20.0 | 31.6 | Increase | +11.6 |
| W12 | 39.0 | 35.1 | Decrease | -3.9 |
| W13 | 21.0 | 17.1 | Decrease | -3.9 |
| W15 | 27.0 | 24.3 | Decrease | -2.7 |
| W17 | 34.0 | 26.9 | Decrease | -7.1 |
| W18/19 | 33.0 | 27.5 | Decrease | -5.5 |
| W21 | 29.0 | 25.2 | Decrease | -3.8 |
| W24 | 28.0 | 23.8 | Decrease | -4.2 |
| W25 | 27.0 | 21.2 | Decrease | -5.8 |
| W27 | 26.0 | 20.2 | Decrease | -5.8 |
| W28 | 25.0 | 19.9 | Decrease | -5.1 |
| W31 | 35.0 | 31.2 | Decrease | -3.8 |
| W33/19 | 28.0 | 23.1 | Decrease | -4.9 |
| W34/19 | 24.0 | 19.7 | Decrease | -4.3 |
| W35 | 26.0 | 19.3 | Decrease | -6.7 |
| W37 | 25.0 | 22.0 | Decrease | -3.0 |
| W38/19 | 26.0 | 20.8 | Decrease | -5.2 |

The data obtained from the two AURN’s located in Wirral shows that there has been an decrease in Nitrogen Dioxide levels from 2022 to 2023 at Tranmere AURN (0.6µg/m3 decrease)and a longer-term reduction in annual mean concentrations of Nitrogen Dioxide in the last 5 years (2019 to 2023) of 3.2 µg/m3 decrease. The data shows that there has been an increase in Nitrogen Dioxide levels from 2022 to 2023 at Birkenhead AURN (0.9µg/m3 increase) but a longer-term reduction in annual mean concentrations of Nitrogen Dioxide in the last 5 years (2019 to 2023) of 3.1µg/m3 decrease.

Five indicative real time sensors were used to monitor Nitrogen Dioxide Levels in locations in Birkenhead, Eastham, Liscard, Poulton, Upton during 2023. No exceedance of the annual mean Nitrogen Dioxide national objective were identified at these monitoring stations. The highest annual mean concentration was measured on Wallasey Road in Liscard (26.5µg/m3). The lowest annual mean concentration was measured on New Chester Road in Eastham (16.8µg/m3).  A table with the monitoring results can be found in Appendix C.

## Particulate Matter (PM10)

Table A.6 in [Appendix A: Monitoring Results](#_Appendix_A:_Monitoring) compares the ratified and adjusted monitored PM10 annual mean concentrations for the past five years with the air quality objective of 40µg/m3.

Table A.7 in [Appendix A](#_Appendix_A:_Monitoring) compares the ratified continuous monitored PM10 daily mean concentrations for the past five years with the air quality objective of 50µg/m3, not to be exceeded more than 35 times per year.

The AURN data for PM10 has demonstrated that there has been no exceedances of the annual mean PM10 objective of 40µg/m3 between 2020 and 2023. There has been a reduction of levels between 2022 and 2023 of 2µg/m3, with monitoring levels in 2022 of 12.8µg/m3 and levels in 2023 of 10.8µg/m3.

There has been a reduction in levels between in 2020 and 2023, with monitoring levels of 11.5µg/m3 in 2020 and monitoring levels of 10.9µg/m3 in 2023.

There has been no exceedances of PM10 daily mean concentrations air quality objective of 50µg/m3, not to be exceeded more than 35 times per year. The number of days where exceedances occurred has reduced from 2022 to 2023, with five days with exceedances in 2022, to zero days with exceedances in 2023.

Monitoring for PM10 was also undertaken using five indicative real time sensors located in Birkenhead, Eastham, Liscard, Poulton, Upton during 2023. The results from the indicative monitoring show that no exceedances of the annual mean PM10 objective were identified

No air quality management areas have been introduced for exceedance of national objective related to PM10.

## Particulate Matter (PM2.5)

Table A.8 in [Appendix A](#_Appendix_A:_Monitoring) presents the ratified and adjusted monitored PM2.5 annual mean concentrations for the past five years.

PM2.5 is monitored by the AURN station located in Tranmere. This AURN is used to monitor background levels. Throughout 2023 there was an exposure reduction approach for PM2.5, with a national objective annual mean of 10µg/m3. The AURN results show that the annual mean result for 2023 of 6.6µg/m3, which is below the National Objective level of 10µg/m3. The results however show that PM2.5 levels are above the new World Health Organisation Air Quality Guideline level of 5µg/m3.

The AURN data for PM2.5 has demonstrated that background levels have had a small reduction between 2019 and 2023, with levels in 2019 of 8.2µg/m3 and levels in 2023 of 6.6µg/m3.

Monitoring for PM2.5 was also undertaken using five indicative real time sensors located in Birkenhead, Eastham, Liscard, Poulton, Upton during 2023. The results from this indicative monitoring show that all five indicative monitors measured levels of PM2.5 over the current World Health Organisation Air Quality Guideline level of 5µg/m3 and also abovethe new annual Mean Concentration Target 10µg/m3. The highest annual mean figure was 11.6µg/m3 (Liscard and Poulton) and the lowest was 10.5µg/m3 (Upton). It must be noted that these results are indicative only. They are not approved for use by local authorities for compliance monitoring according to TG22, however they can provide indicative air quality data to support our work in reducing air pollution.

# 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; PM10; PM2.5 | NO | Chemiluminescent; FDMS | 68.6 | 50 | 3 |
| CM2 | Wirral Birkenhead | Urban Centre | 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 | NO | 0 | 12.8 | No | 2.0 |
| W03/19 | Leasowe Road, Wallasey | Kerbside | 329070 | 392309 | NO2 | NO | 5.5 | 0.5 | No | 2.3 |
| W04 | Borough Road, Tranmere | Roadside | 331322 | 387414 | NO2 | NO | 9.6 | 2.6 | No | 2.5 |
| W05 | Bolton Road East | Roadside | 334128 | 384634 | NO2 | NO | 12.5 | 4.3 | No | 2.2 |
| W08 | Moreton Cross | Kerbside | 326243 | 389946 | NO2 | NO | 1.5 | 0.5 | No | 2.2 |
| W09 | Woodchurch Road | Roadside | 329257 | 386448 | NO2 | NO | 0 | 18.0 | No | 2.0 |
| W09/23 | Woodchurch Road | Kerbside | 329261 | 386449 | NO2 | NO | 11.4 | 0.5 | No | 2.4 |
| W12 | New Chester Road, Port sunlight | Roadside | 334061 | 384617 | NO2 | NO | 9.4 | 1.0 | No | 2.2 |
| W13 | New Chester Road, Port Sunlight | Kerbside | 334113 | 384588 | NO2 | NO | 0 | 9.3 | No | 2.0 |
| W14/21 | Wallasey Rd, Liscard | Roadside | 330462 | 391907 | NO2 | NO | 2.1 | 1.0 | No | 2.7 |
| W15 | Arrowe Park Road, Woodchurch | Kerbside | 327625 | 386340 | NO2 | NO | 1.5 | 2.1 | No | 2.4 |
| W17 | St Albans Rd Liscard | Roadside | 330646 | 391805 | NO2 | NO | 30.0 | 0.3 | No | 2.1 |
| W18/19 | New Chester Road, Port Sunlight | Roadside | 334097 | 384546 | NO2 | NO | 5.0 | 4.9 | No | 2.4 |
| W21 | Singleton Ave, Tranmere | Roadside | 331034 | 387019 | NO2 | NO | 3.6 | 1.7 | No | 2.6 |
| W22/23 | Birkenhead Road, Seacombe | Roadside | 332294 | 390429 | NO2 | NO | 2.5 | 0.4 | No | 2.5 |
| W23/23 | Argyle Street South, B/head | Kerbside | 332150 | 388372 | NO2 | NO | 3.6 | 0.6 | No | 2.3 |
| W24 | Conway Street Birkenhead | Roadside | 332231 | 388723 | NO2 | NO | N/A | 2.0 | No | 2.3 |
| W25 | Dock Road, Seacombe | Roadside | 331756 | 390332 | NO2 | NO | 13.3 | 1.8 | No | 2.3 |
| W27 | New Chester Road, Port Sunlight | Roadside | 334194 | 384348 | NO2 | NO | 7.6 | 3.5 | No | 2.1 |
| W28 | Church Road, Bebington | Roadside | 333223 | 383277 | NO2 | NO | 6.4 | 2.6 | No | 2.1 |
| W29/20 | Mill Lane, Poulton | Kerbside | 330209 | 391139 | NO2 | NO | 0 | 11.8 | No | 1.7 |
| W31 | Canning St, Birkenhead | Roadside | 332423 | 389398 | NO2 | NO | 7.5 | 1.9 | No | 2.2 |
| W32/23 | Telegraph Road, Heswall | Roadside | 327096 | 381691 | NO2 | NO | 9.6 | 2.9 | No | 2.3 |
| W33/19 | Storeton Road, Bebington | Roadside | 330921 | 386652 | NO2 | NO | 7.8 | 0.7 | No | 2.4 |
| W34/19 | New Chester Road, Port Sunlight | Kerbside | 334096 | 384535 | NO2 | NO | 0 | 9.5 | No | 2.0 |
| W35 | Vernon Road, Seacombe | Roadside | 331716 | 390696 | NO2 | NO | 5.5 | 0.5 | No | 2.5 |
| W36/21 | Geneva Road, Seacombe | Kerbside | 331843 | 390812 | NO2 | NO | 4.7 | 0.5 | No | 2.7 |
| W37 | Corporation Road, Birkenhead | Kerbside | 331529 | 389762 | NO2 | NO | N/A | 1.8 | No | 2.1 |
| W38/19 | Mount Road, Higher Bebington | Roadside | 331481 | 384564 | NO2 | NO | 0 | 6.0 | No | 2.0 |
| W39/21 | Chester St, Birkenhead | Kerbside | 332711 | 388856 | NO2 | NO | 3.7 | 0.5 | No | 2.5 |
| W41 | St Georges Road, Wallasey | Kerbside | 329487 | 392312 | NO2 | NO | 6.7 | 4.4 | No | 2.7 |
| W42 | New Chester Rd, Bromborough | Roadside | 334888 | 382627 | NO2 | NO | 8.3 | 2.5 | No | 2.7 |
| W43 | Whetstone Lane, Birkenhead | Roadside | 331607 | 388353 | NO2 | NO | 2.6 | 1.8 | No | 2.7 |
| W44/23 | Meols Drive, West Kirby | Roadside | 321238 | 387034 | NO2 | NO | 7.9 | 3.5 | No | 2.4 |
| W45 | Arrowe Park Rd, Upton | Kerbside | 327155 | 387140 | NO2 | NO | 2.6 | 0.8 | No | 2.4 |
| W47/22 | Bridle Road, Eastham | Roadside | 335784 | 380076 | NO2 | NO | 0 | 15.9 | No | 2.0 |
| W48 | Wheatland Lane, Seacombe | Roadside | 331878 | 390822 | NO2 | NO | 5.8 | 2.7 | No | 2.4 |
| W49 | Cross Street, Birkenhead | Kerbside | 332627 | 388749 | NO2 | NO | 1.7 | 0.4 | No | 2.4 |
| W50 | Parry Street, Seacombe | Roadside | 331928 | 390767 | NO2 | NO | 4.3 | 1.5 | No | 2.2 |
| W51 | Mount Grove, Birkenhead | Roadside | 331301 | 388040 | NO2 | NO | 30.2 | 2.6 | No | 2.4 |
| W52 | Batten Road, Birkenhead | Roadside | 331337 | 387973 | NO2 | NO | 4.2 | 2.9 | No | 2.1 |
| W53 | Morland Avenue, Bromborough | Roadside | 334697 | 380863 | NO2 | NO | 14.3 | 4.9 | No | 2.3 |
| W54 | Morland Avenue, Bromborough | Roadside | 334794 | 380852 | NO2 | NO | 14.3 | 4.9 | No | 2.1 |
| W55 | Norbury Avenue, Higher Bebington | Roadside | 332488 | 384189 | NO2 | NO | 8.0 | 1.6 | No | 2.1 |
| W56 | Norbury Avenue, Higher Bebington | Roadside | 332471 | 384120 | NO2 | NO | 8.4 | 1.7 | No | 1.9 |
| W57 | Pulford Road, Bebington | Kerbside | 332620 | 384345 | NO2 | NO | 50.0 | 0.6 | No | 2.1 |
| W58/23 | Seabank Road, New Brighton | Kerbside | 330940 | 393447 | NO2 | NO | 5.8 | 0.7 | No | 2.6 |
| W59 | Lees Ave, Rock Ferry | Roadside | 332854 | 386834 | NO2 | NO | 23.2 | 0.3 | No | 2.3 |
| W60 | Ionic Street, Rock Ferry | Roadside | 332894 | 386792 | NO2 | NO | 0 | 1.7 | No | 2.3 |
| W61 | Green Lane, Wallasey Village | Kerbside | 328527 | 392568 | NO2 | NO | 23.8 | 0.8 | No | 2.2 |
| W62 | Greenleas Road, Wallasey Village | Kerbside | 328587 | 392536 | NO2 | NO | 9.7 | 0.7 | No | 2.2 |
| W63 | Manor Lane, Liscard | Kerbside | 331202 | 392366 | NO2 | NO | 7.7 | 0.5 | No | 2.3 |
| W64 | Withens Lane, Liscard | Roadside | 331031 | 392396 | NO2 | NO | 109.2 | 2.1 | No | 2.2 |
| W65 | Tower Road, Birkenhead | Roadside | 332170 | 389843 | NO2 | NO | 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 NO2 Monitoring Results: Automatic Monitoring (µg/m3)

| Site ID | X OS Grid Ref (Easting) | Y OS Grid Ref (Northing) | Site Type | Valid Data Capture for Monitoring Period (%) (1) | Valid Data Capture 2023 (%) (2) | 2019 | 2020 | 2021 | 2022 | 2023 |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| CM1 | 332054 | 386711 | Urban Background | 92.8 | 92.8 | 16 | 9.6 | 12.6 | 13.4 | 12.8 |
| CM2 | 331931 | 388466 | Urban Centre | 90.6 | 90.6 | 23 | 13.1 | 18.3 | 16.8 | 17.9 |

**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**

**Where exceedances of the NO2 annual mean objective occur at locations not representative of relevant exposure, the fall-off with distance concentration has been calculated and reported concentration provided in brackets for 2023**

**Notes:**

The annual mean concentrations are presented as µg/m3.

Exceedances of the NO2 annual mean objective of 40µg/m3 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](#_Appendix_C:_Supporting) 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 NO2 Monitoring Results: Non-Automatic Monitoring (µg/m3)

| Diffusion Tube ID | X OS Grid Ref (Easting) | Y OS Grid Ref (Northing) | Site Type | Valid Data Capture for Monitoring Period (%) (1) | Valid Data Capture 2023 (%) (2) | 2019 | 2020 | 2021 | 2022 | 2023 |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| W02 | 335887 | 379797 | Roadside | 100 | 100.0 | 18.0 | 14.3 | 15.1 | 14.7 | 12.9 |
| W03/19 | 329070 | 392309 | Kerbside | 100 | 100.0 | 26.0 | 22.7 | 24.0 | 21.4 | 22.1 |
| W04 | 331322 | 387414 | Roadside | 100 | 100.0 | 29.0 | 25.3 | 25.1 | 24.3 | 23.8 |
| W05 | 334128 | 384634 | Roadside | 100 | 100.0 | 33.0 | 26.8 | 27.5 | 28.3 | 27.2 |
| W08 | 326243 | 389946 | Kerbside | 100 | 100.0 | 29.0 | 23.5 | 23.7 | 25.3 | 23.1 |
| W09 | 329257 | 386448 | Roadside | 100 | 50.0 | 20.0 | 19.0 | 18.8 | 19.2 | 31.6 |
| W09/23 | 329261 | 386449 | Kerbside | 83.3 | 42.3 | x | x | x | x | 24.1 |
| W12 | 334061 | 384617 | Roadside | 100 | 100.0 | 39.0 | 32.7 | 36.5 | 35.6 | 35.1 |
| W13 | 334113 | 384588 | Kerbside | 100 | 100.0 | 21.0 | 17.1 | 17.8 | 17.3 | 17.1 |
| W14/21 | 330462 | 391907 | Roadside | 92.3 | 92.3 | x | x | 20.5 | 21.3 | 20.4 |
| W15 | 327625 | 386340 | Kerbside | 100.0 | 100.0 | 27.0 | 22.5 | 24.6 | 24.5 | 24.3 |
| W17 | 330646 | 391805 | Roadside | 84.6 | 84.6 | 34.0 | 26.4 | 28.8 | 27.2 | 26.9 |
| W18/19 | 334097 | 384546 | Roadside | 92.3 | 92.3 | 33.0 | 26.6 | 29.2 | 28.5 | 27.5 |
| W21 | 331034 | 387019 | Roadside | 92.3 | 92.3 | 29.0 | 22.8 | 27.2 | 24.0 | 25.2 |
| W22/23 | 332294 | 390429 | Roadside | 100.0 | 100.0 | x | x | x | x | 22.8 |
| W23/23 | 332150 | 388372 | Kerbside | 92.3 | 92.3 | x | x | x | x | 21.8 |
| W24 | 332231 | 388723 | Roadside | 92.3 | 92.3 | 28.0 | 23.0 | 26.3 | 24.2 | 23.8 |
| W25 | 331756 | 390332 | Roadside | 92.3 | 92.3 | 27.0 | 18.8 | 23.1 | 22.5 | 21.2 |
| W27 | 334194 | 384348 | Roadside | 100.0 | 100.0 | 26.0 | 17.2 | 23.4 | 20.2 | 20.2 |
| W28 | 333223 | 383277 | Roadside | 100.0 | 100.0 | 25.0 | 20.5 | 21.8 | 21.2 | 19.9 |
| W29/20 | 330209 | 391139 | Kerbside | 100.0 | 100.0 | x | 15.4 | 18.3 | 18.8 | 17.4 |
| W31 | 332423 | 389398 | Roadside | 84.6 | 84.6 | 35.0 | 27.7 | 31.5 | 30.7 | 31.2 |
| W32/23 | 327096 | 381691 | Roadside | 84.6 | 84.6 | x | x | x | x | 15.3 |
| W33/19 | 330921 | 386652 | Roadside | 92.3 | 92.3 | 28.0 | 23.5 | 23.4 | 23.3 | 23.1 |
| W34/19 | 334096 | 384535 | Kerbside | 100.0 | 100.0 | 24.0 | 20.9 | 20.9 | 20.8 | 19.7 |
| W35 | 331716 | 390696 | Roadside | 100.0 | 100.0 | 26.0 | 21.4 | 20.3 | 19.1 | 19.3 |
| W36/21 | 331843 | 390812 | Kerbside | 92.3 | 92.3 | x | x | 21.4 | 23.1 | 22.4 |
| W37 | 331529 | 389762 | Kerbside | 100.0 | 100.0 | 25.0 | 24.2 | 23.5 | 22.9 | 22.0 |
| W38/19 | 331481 | 384564 | Roadside | 100.0 | 100.0 | 26.0 | 14.0 | 21.7 | 22.1 | 20.8 |
| W39/21 | 332711 | 388856 | Kerbside | 92.3 | 92.3 | x | x | 24.2 | 25.0 | 22.1 |
| W41 | 329487 | 392312 | Kerbside | 90.4 | 90.4 | x | 11.5 | 14.3 | 15.2 | 14.0 |
| W42 | 334888 | 382627 | Roadside | 84.6 | 84.6 | x | 19.1 | 20.6 | 19.9 | 18.9 |
| W43 | 331607 | 388353 | Roadside | 82.7 | 82.7 | x | 21.5 | 22.3 | 21.8 | 20.6 |
| W44/23 | 321238 | 387034 | Roadside | 92.3 | 92.3 | x | x | x | x | 15.7 |
| W45 | 327155 | 387140 | Kerbside | 100.0 | 100.0 | x | 34.0 | 36.8 | 32.4 | 31.3 |
| W47/22 | 335784 | 380076 | Roadside | 82.7 | 82.7 | x | x | 22.9 | 13.5 | 13.5 |
| W48 | 331878 | 390822 | Roadside | 100.0 | 100.0 | x | x | 23.1 | 27.4 | 24.8 |
| W49 | 332627 | 388749 | Kerbside | 100.0 | 100.0 | x | x | 17.9 | 20.4 | 20.1 |
| W50 | 331928 | 390767 | Roadside | 92.3 | 92.3 | x | x | 26.0 | 25.6 | 23.0 |
| W51 | 331301 | 388040 | Roadside | 69.2 | 69.2 | x | x | x | 13.3 | 11.6 |
| W52 | 331337 | 387973 | Roadside | 92.3 | 92.3 | x | x | x | 13.0 | 12.9 |
| W53 | 334697 | 380863 | Roadside | 100.0 | 100.0 | x | x | x | 11.0 | 10.0 |
| W54 | 334794 | 380852 | Roadside | 65.4 | 65.4 | x | x | 10.0 | 8.2 | 8.9 |
| W55 | 332488 | 384189 | Roadside | 92.3 | 92.3 | x | x | x | 11.8 | 11.3 |
| W56 | 332471 | 384120 | Roadside | 82.7 | 82.7 | x | x | 10.6 | 11.7 | 11.5 |
| W57 | 332620 | 384345 | Kerbside | 90.4 | 90.4 | x | x | 10.1 | 10.7 | 11.6 |
| W58/23 | 330940 | 393447 | Kerbside | 82.7 | 82.7 | x | x | x | x | 22.4 |
| W59 | 332854 | 386834 | Roadside | 75.0 | 75.0 | x | x | x | 13.0 | 11.9 |
| W60 | 332894 | 386792 | Roadside | 59.6 | 59.6 | x | x | x | 12.9 | 15.6 |
| W61 | 328527 | 392568 | Kerbside | 100.0 | 100.0 | x | x | 11.9 | 13.9 | 12.8 |
| W62 | 328587 | 392536 | Kerbside | 84.6 | 84.6 | x | x | x | 14.1 | 13.2 |
| W63 | 331202 | 392366 | Kerbside | 90.4 | 90.4 | x | x | x | 16.6 | 14.4 |
| W64 | 331031 | 392396 | Roadside | 90.4 | 90.4 | x | x | x | 15.6 | 14.5 |
| W65 | 332170 | 389843 | Roadside | 82.7 | 82.7 | x | x | x | 22.6 | 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/m3.

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

NO2 annual means exceeding 60µg/m3, indicating a potential exceedance of the NO2 1-hour mean objective are shown in **bold and underlined**.

Means for diffusion tubes have been corrected for bias. All means have been “annualised” as per LAQM.TG22 if valid data capture for the full calendar year is less than 75%. See [Appendix C](#_Appendix_C:_Supporting) 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 NO2 Concentrations

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

| Site ID | X OS Grid Ref (Easting) | Y OS Grid Ref (Northing) | Site Type | Valid Data Capture for Monitoring Period (%) (1) | Valid Data Capture 2023 (%) (2) | 2019 | 2020 | 2021 | 2022 | 2023 |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| CM1 | 332054 | 386711 | Urban Background | 92.8 | 92.8 | 0 | 0 | 0 | 0 | 0 |
| CM2 | 331931 | 388466 | Urban Centre | 90.6 | 90.6 | 0 | 0 | 0 | 0 | 0 |

**Notes:**

Results are presented as the number of 1-hour periods where concentrations greater than 200µg/m3 have been recorded.

Exceedances of the NO2 1-hour mean objective (200µg/m3 not to be exceeded more than 18 times/year) are shown in **bold**.

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

(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 PM10 Monitoring Results (µg/m3)

| Site ID | X OS Grid Ref (Easting) | Y OS Grid Ref (Northing) | Site Type | Valid Data Capture for Monitoring Period (%) (1) | Valid Data Capture 2023 (%) (2) | 2019 | 2020 | 2021 | 2022 | 2023 |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| CM1 | 332395 | 433175 | Urban Background | 99.09 | 99.09% | x | 11.5 | 11.3 | 12.8 | 10.9 |

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

**Notes:**

The annual mean concentrations are presented as µg/m3.

Exceedances of the PM10 annual mean objective of 40µg/m3 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](#_Appendix_C:_Supporting) 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.7 – 24-Hour Mean PM10 Monitoring Results, Number of PM10 24-Hour Means > 50µg/m3

| Site ID | X OS Grid Ref (Easting) | Y OS Grid Ref (Northing) | Site Type | Valid Data Capture for Monitoring Period (%) (1) | Valid Data Capture 2023 (%) (2) | 2019 | 2020 | 2021 | 2022 | 2023 |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| CM1 | 332054 | 386711 | Urban Background | 99.09 | 99.09% | x | 1 | 1 | 5 | 0 |

**Notes:**

Results are presented as the number of 24-hour periods where daily mean concentrations greater than 50µg/m3 have been recorded.

Exceedances of the PM10 24-hour mean objective (50µg/m3 not to be exceeded more than 35 times/year) are shown in **bold**.

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

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

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

Table A.8 – Annual Mean PM2.5 Monitoring Results (µg/m3)

| Site ID | X OS Grid Ref (Easting) | Y OS Grid Ref (Northing) | Site Type | Valid Data Capture for Monitoring Period (%) (1) | Valid Data Capture 2023 (%) (2) | 2019 | 2020 | 2021 | 2022 | 2023 |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| CM1 | 332395 | 433175 | Urban Background | 99.1 | 99.1 | 8.2 | 7.1 | 7.0 | 7.8 | 6.6 |

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

**Notes:**

The annual mean concentrations are presented as µg/m3.

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](#_Appendix_C:_Supporting) 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%).

# Appendix B: Full Monthly Diffusion Tube Results for 2023

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

| DT ID | X OS Grid Ref (Easting) | Y OS Grid Ref (Northing) | Jan | Feb | Mar | Apr | May | Jun | Jul | Aug | Sep | Oct | Nov | Dec | Annual Mean: Raw Data | Annual Mean: Annualised and Bias Adjusted  (0.77) | Annual Mean: Distance Corrected to Nearest Exposure | Comment |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| W02 | 335887 | 379797 | 19.0 | 20.7 | 21.4 | 21.9 | 17.4 | 17.6 | 10.9 | 14.6 | 13.3 | 26.5 | 13.8 | 3.8 | 16.7 | 12.9 |  |  |
| W03/19 | 329070 | 392309 | 36.0 | 35.8 | 31.2 | 31.8 | 25.3 | 23.8 | 18.9 | 22.2 | 24.8 | 35.0 | 34.8 | 25.1 | 28.7 | 22.1 |  |  |
| W04 | 331322 | 387414 | 40.1 | 34.2 | 27.1 | 32.3 | 26.2 | 23.9 | 21.6 | 25.2 | 34.1 | 38.8 | 42.3 | 24.8 | 30.9 | 23.8 |  |  |
| W05 | 334128 | 384634 | 46.0 | 37.7 | 35.8 | 35.1 | 33.4 | 28.1 | 28.7 | 32.7 | 38.1 | 35.4 | 43.4 | 29.6 | 35.3 | 27.2 |  |  |
| W08 | 326243 | 389946 | 35.3 | 28.1 | 31.6 | 32.6 | 20.6 | 27.4 | 27.2 | 26.9 | 33.0 | 35.9 | 36.8 | 24.6 | 30.0 | 23.1 |  |  |
| W09 | 329257 | 386448 | 74.0 | 58.3 | 39.7 | 36.1 | 22.2 | 19.2 | \* | \* | \* | \* | \* | \* | 41.6 | 31.6 |  |  |
| W09/23 | 329261 | 386449 | \* | \* | \* | \* | \* | \* | \* | 23.9 | 33.5 | 39.1 | 43.9 | 24.5 | 33.0 | 24.1 |  |  |
| W12 | 334061 | 384617 | 47.6 | 46.4 | 43.3 | 51.1 | 35.7 | 46.5 | 40.1 | 41.0 | 48.2 | 56.9 | 51.7 | 37.9 | 45.5 | 35.1 |  |  |
| W13 | 334113 | 384588 | 24.7 | 25.0 | 22.5 | 23.9 | 21.2 | 21.2 | 15.0 | 20.0 | 22.4 | 26.2 | 28.0 | 16.7 | 22.2 | 17.1 |  |  |
| W14/21 | 330462 | 391907 | 29.3 | 34.1 | 27.0 | 27.9 | 20.7 | 19.4 | 15.8 | 20.1 | 28.4 | 32.3 | 36.5 | x | 26.5 | 20.4 |  |  |
| W15 | 327625 | 386340 | 30.2 | 40.2 | 31.0 | 35.3 | 29.8 | 39.0 | 26.1 | 30.2 | 31.0 | 33.9 | 28.7 | 23.3 | 31.6 | 24.3 |  |  |
| W17 | 330646 | 391805 | 38.0 | 41.9 | 38.9 | 41.5 | 29.1 | 34.5 | 20.4 | 29.5 | 29.7 | x | 46.1 | x | 35.0 | 26.9 |  |  |
| W18/19 | 334097 | 384546 | 42.5 | 41.0 | 38.2 | 40.3 | 32.7 | 31.9 | 25.2 | 28.4 | 34.1 | 40.1 | 37.8 | x | 35.7 | 27.5 |  |  |
| W21 | 331034 | 387019 | 41.4 | 36.4 | 33.8 | 32.0 | 21.8 | 13.1 | 26.7 | 28.9 | 37.9 | 44.3 | 43.1 | x | 32.7 | 25.2 |  |  |
| W22/23 | 332294 | 390429 | 36.5 | 37.1 | 32.5 | 30.5 | 26.8 | 15.0 | 21.9 | 24.7 | 33.2 | 34.9 | 32.7 | 29.6 | 29.6 | 22.8 |  |  |
| W23/23 | 332150 | 388372 | x | 32.9 | 31.1 | 31.8 | 25.5 | 23.4 | 19.4 | 24.2 | 29.1 | 36.1 | 38.8 | 19.2 | 28.3 | 21.8 |  |  |
| W24 | 332231 | 388723 | x | 35.6 | 28.6 | 34.9 | 29.6 | 26.8 | 19.7 | 30.3 | 32.5 | 40.4 | 36.8 | 25.2 | 30.9 | 23.8 |  |  |
| W25 | 331756 | 390332 | 30.6 | 28.9 | 28.9 | 28.7 | 21.0 | 24.7 | 18.4 | 20.9 | 27.8 | 37.2 | 35.9 | x | 27.5 | 21.2 |  |  |
| W66B | 332055 | 386714 | 17.4 | 19.0 | 14.9 | 16.0 | 10.4 | 11.5 | 9.0 | 10.9 | x | 21.7 | 24.6 | 13.8 | 15 | 11.8 |  | Triplicate Site |
| W27 | 334194 | 384348 | 27.8 | 29.8 | 30.4 | 32.6 | 25.3 | 24.0 | 20.2 | 19.6 | 24.9 | 35.8 | 26.6 | 18.1 | 26.3 | 20.2 |  |  |
| W28 | 333223 | 383277 | 29.4 | 32.8 | 24.8 | 27.0 | 22.1 | 25.1 | 15.6 | 21.3 | 27.9 | 29.3 | 33.2 | 21.3 | 25.8 | 19.9 |  |  |
| W29/20 | 330209 | 391139 | 24.2 | 27.8 | 22.3 | 25.8 | 18.4 | 22.4 | 15.0 | 19.2 | 24.7 | 28.4 | 28.1 | 15.2 | 22.6 | 17.4 |  |  |
| W66C | 332055 | 386714 | 17.4 | 19.0 | 14.9 | 16.0 | 10.4 | 11.5 | 9.0 | 10.9 | x | 21.7 | 24.6 | 13.8 | 15 | 11.3 |  | Triplicate Site |
| W31 | 332423 | 389398 | 40.5 | 47.0 | 38.6 | 42.5 | 39.6 | 35.9 | 28.4 | 36.5 | 44.0 | x | 52.2 | x | 40.5 | 31.2 |  |  |
| W32/23 | 327096 | 381691 | x | 19.8 | 22.2 | 21.5 | 15.6 | 16.8 | 14.6 | 14.5 | 21.9 | 27.6 | 24.8 | x | 19.9 | 15.3 |  |  |
| W33/19 | 330921 | 386652 | 34.5 | 35.6 | 28.0 | 31.4 | 20.9 | 25.2 | x | 22.2 | 29.4 | 33.8 | 39.0 | 30.4 | 30.0 | 23.1 |  |  |
| W34/19 | 334096 | 384535 | 29.1 | 32.5 | 22.1 | 26.5 | 22.9 | 22.1 | 18.5 | 23.1 | 26.9 | 28.4 | 31.7 | 23.4 | 25.6 | 19.7 |  |  |
| W35 | 331716 | 390696 | 29.6 | 31.2 | 25.6 | 29.4 | 21.1 | 21.7 | 16.6 | 20.8 | 26.2 | 28.5 | 34.2 | 16.3 | 25.1 | 19.3 |  |  |
| W36/21 | 331843 | 390812 | 28.8 | 28.3 | 29.2 | 32.4 | x | 29.8 | 20.7 | 24.4 | 30.5 | 38.1 | 33.9 | 24.4 | 29.1 | 22.4 |  |  |
| W37 | 331529 | 389762 | 32.5 | 31.8 | 26.4 | 28.9 | 21.9 | 24.5 | 20.3 | 25.6 | 28.2 | 39.5 | 38.8 | 23.9 | 28.5 | 22.0 |  |  |
| W38/19 | 331481 | 384564 | 28.7 | 28.4 | 27.8 | 30.7 | 25.4 | 28.1 | 20.9 | 21.7 | 27.7 | 32.4 | 31.5 | 21.0 | 27.0 | 20.8 |  |  |
| W39/21 | 332711 | 388856 | 34.6 | 35.7 | 24.1 | 31.3 | 24.7 | 20.5 | 20.9 | 25.2 | 35.1 | 38.0 | 26.2 | x | 28.8 | 22.1 |  |  |
| W66A | 332055 | 386714 | 17.4 | 19.0 | 14.9 | 16.0 | 10.4 | 11.5 | 9.0 | 10.9 | x | 21.7 | 24.6 | 13.8 | 14 | 11.1 |  | Triplicate Site |
| W41 | 329487 | 392312 | 20.1 | 21.3 | 18.0 | 19.7 | 11.4 | 12.8 | 9.1 | x | 18.0 | 29.0 | 28.0 | 12.8 | 18.2 | 14.0 |  |  |
| W42 | 334888 | 382627 | 27.1 | 31.8 | 24.9 | x | 21.6 | 22.5 | 13.4 | 17.9 | 23.5 | 29.4 | 33.8 | x | 24.6 | 18.9 |  |  |
| W43 | 331607 | 388353 | 32.0 | 32.7 | 27.2 | 28.0 | 21.4 | 22.8 | 20.6 | 22.6 | 27.4 | 32.4 | x | x | 26.7 | 20.6 |  |  |
| W44/23 | 321238 | 387034 | x | 22.0 | 23.3 | 23.4 | 19.0 | 19.4 | 19.4 | 16.4 | 18.2 | 24.2 | 25.1 | 14.3 | 20.4 | 15.7 |  |  |
| W45 | 327155 | 387140 | 45.2 | 44.2 | 29.5 | 45.6 | 37.8 | 39.8 | 32.6 | 33.9 | 50.1 | 45.0 | 51.4 | 33.4 | 40.7 | 31.3 |  |  |
| W47/22 | 335784 | 380076 | 19.2 | 19.1 | 17.0 | 21.9 | 12.3 | x | 17.5 | 12.1 | 17.6 | x | 24.0 | 14.1 | 17.5 | 13.5 |  |  |
| W48 | 331878 | 390822 | 33.3 | 37.3 | 35.4 | 38.5 | 23.4 | 33.7 | 24.7 | 29.0 | 33.9 | 36.3 | 34.6 | 26.2 | 32.2 | 24.8 |  |  |
| W49 | 332627 | 388749 | 25.3 | 27.5 | 24.5 | 34.5 | 16.8 | 18.5 | 18.9 | 24.0 | 28.2 | 39.3 | 31.7 | 24.2 | 26.1 | 20.1 |  |  |
| W50 | 331928 | 390767 | 33.0 | 34.1 | 27.0 | 32.6 | 40.1 | 25.5 | 24.6 | 28.2 | 19.4 | 33.2 | 30.5 | x | 29.8 | 23.0 |  |  |
| W51 | 331301 | 388040 | x | 5.3 | 18.9 | 19.4 | x | 11.2 | x | 12.2 | 16.3 | x | 26.2 | 12.4 | 15.2 | 11.6 |  |  |
| W52 | 331337 | 387973 | 19.9 | 19.7 | 17.0 | 18.7 | 10.2 | 13.4 | 9.5 | 12.6 | x | 24.1 | 26.7 | 12.9 | 16.8 | 12.9 |  |  |
| W53 | 334697 | 380863 | 16.9 | 13.8 | 11.3 | 14.4 | 10.6 | 11.6 | 7.7 | 11.3 | 13.0 | 18.2 | 17.0 | 10.1 | 13.0 | 10.0 |  |  |
| W54 | 334794 | 380852 | 15.2 | 13.2 | 12.0 | 10.9 | 8.5 | x | x | x | x | 17.6 | 19.4 | 7.3 | 13.0 | 8.9 |  |  |
| W55 | 332488 | 384189 | 19.0 | 18.6 | 17.0 | 15.6 | 10.8 | 10.6 | 9.7 | 11.5 | 13.3 | x | 24.5 | 10.7 | 14.7 | 11.3 |  |  |
| W56 | 332471 | 384120 | 17.2 | 17.8 | 14.7 | 13.8 | x | x | 7.6 | 9.3 | 20.9 | 18.7 | 21.1 | 8.3 | 14.9 | 11.5 |  |  |
| W57 | 332620 | 384345 | 11.5 | 17.4 | 14.3 | 16.2 | 9.7 | x | 18.2 | 11.5 | 15.0 | 18.9 | 22.7 | 10.7 | 15.1 | 11.6 |  |  |
| W58/23 | 330940 | 393447 | x | 29.1 | x | 32.9 | 24.8 | 22.8 | 20.9 | 23.2 | 31.8 | 37.8 | 39.2 | 28.4 | 29.1 | 22.4 |  |  |
| W59 | 332854 | 386834 | 20.6 | 21.0 | x | x | x | 10.2 | 7.5 | 11.3 | 13.8 | 18.7 | 24.3 | 11.3 | 15.4 | 11.9 |  |  |
| W60 | 332894 | 386792 | 43.0 | x | 16.8 | x | 11.6 | x | x | 12.6 | 15.2 | 24.7 | 27.0 | x | 21.6 | 15.6 |  |  |
| W61 | 328527 | 392568 | 16.2 | 19.0 | 18.9 | 18.5 | 11.6 | 12.8 | 8.9 | 13.0 | 16.5 | 25.2 | 27.8 | 10.4 | 16.6 | 12.8 |  |  |
| W62 | 328587 | 392536 | x | 17.9 | 18.1 | 17.4 | 12.0 | 10.5 | 9.0 | 14.0 | 17.5 | 29.6 | 24.9 | x | 17.1 | 13.2 |  |  |
| W63 | 331202 | 392366 | 22.3 | 21.5 | 17.9 | 18.0 | 12.5 | x | 9.5 | 15.9 | 19.2 | 26.0 | 25.5 | 17.9 | 18.7 | 14.4 |  |  |
| W64 | 331031 | 392396 | 20.2 | 15.3 | 23.2 | 22.6 | 14.8 | x | 12.5 | 14.0 | 21.0 | 28.2 | 27.7 | 7.4 | 18.8 | 14.5 |  |  |
| W65 | 332170 | 389843 | 33.4 | 35.4 | 35.3 | 36.7 | 17.3 | 25.7 | 21.9 | 23.7 | 33.9 | 30.2 | x | x | 29.4 | 22.6 |  |  |

**All erroneous data has been removed from the NO2 diffusion tube dataset presented in Table B.1.**

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

**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 2023 diffusion tube data has been uploaded to the Diffusion Tube Data Entry System.**

**Notes:**

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

NO2 annual means exceeding 60µg/m3, indicating a potential exceedance of the NO2 1-hour mean objective are shown in **bold and underlined**.

See [Appendix C](#_Appendix_C:_Supporting) for details on bias adjustment and annualisation.

X indicates data missing, due to unauthorised removal of tube from the site or removal of erroneous data

\* indicates site not in use during this period.

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

## New or Changed Sources Identified Within Wirral Council During 2023

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

## Additional Air Quality Works Undertaken by Wirral Council During 2023

Wirral Council has implemented an Air Quality Strategy 2024 – 2028 and has produced a supporting implementation plan to drive the Strategy forward.

Wirral Council has not completed any additional works within the reporting year of 2023 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 December 2022. 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, in 2023, forty-eight sites were retained, eight sites were removed, and six new monitoring locations were added (NB one site has three monitoring station (triplicate) as part of a co-location study). The sites that were removed are W22, W23, W26, W30, W32, W40, W44 and W58. The new monitoring sites are W22/23, W23/23 W32/23, W44/23, W58/23 and W66 (comprising W66A, W66B and W66C). NB fifty-seven results are available for 2023, as site W09 was relocated mid way through 2023 and replaced with W09/23. Both annualised results have been reported.

A further passive diffusion tube monitoring review was carried out in December 2023. Following this review, all existing fifty-six passive diffusion tube monitoring sites were maintained. The table below summarises the changes to the site locations for 2023.

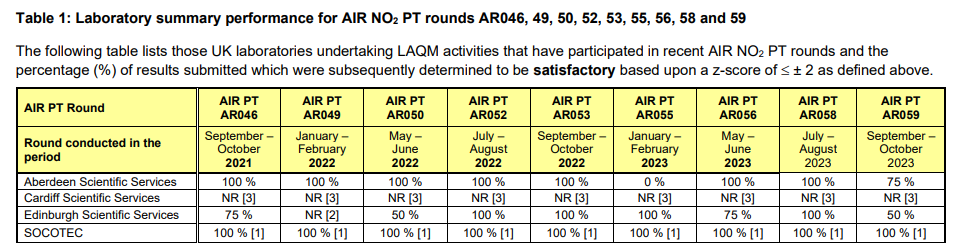
## Table C1. Changes to Site Locations for 2023

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Site Ref Number** | **Address** | **Eastings** | **Northings** | **2023 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\* |
| W09/23 | Woodchurch Road | 329261 | 386449 | New |
| W12 | New Chester Road, New Ferry | 334061 | 384617 | Current |
| W13 | New Chester Road, New Ferry | 334113 | 384588 | Current |
| W14/21 | 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 |
| W22/22 | Norwood Road, Poulton | 330729 | 390758 | Deleted |
| W22/23 | Birkenhead Road | 332294 | 390429 | New |
| W23 | Cleveland street, Birkenhead | 332385 | 389154 | Deleted |
| W23/23 | Argyle Street South | 332150 | 388372 | New |
| W24 | Conway Street, Birkenhead | 332231 | 388723 | Current |
| W25 | Dock Road, Seacombe | 331756 | 390332 | Current |
| W26/19 | Allport Lane, Bromborough | 335053 | 381295 | Deleted |
| W66B | Tranmere AURN MIDDLE | 332055 | 386714 | New |
| 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 | Deleted |
| W66C | Tranmere AURN RIGHT | 332055 | 386714 | New |
| W31 | Canning St, Birkenhead | 332423 | 389398 | Current |
| W32 | Telegraph Rd, Heswall | 327174 | 381630 | Deleted |
| W32/23 | Car Park, Telegraph Road | 327096 | 381691 | New |
| 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 | Deleted |
| [W66A](mailto:N@1S1) | Tranmere AURN LEFT | 332055 | 386714 | New |
| 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 | Deleted |
| [W44/23](mailto:N@1S5) | Meols Drive, West Kirby | 321238 | 387034 | New |
| W45 | Arrowe Park Rd, Upton | 327155 | 387140 | Current |
| [W46](mailto:N@1S7) | Travel blank |  |  | N/A |
| W47/22 | Bridle Road, Eastham | 335767 | 380068 | Current |
| 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 Ave | 332488 | 384189 | Current |
| W56 | Brackenwood Junior School Norbury Ave | 332471 | 384120 | Current |
| W57 | Brackenwood Infants School | 332620 | 384345 | Current |
| W58 | Brackenwood Infants School Acreville Road | 332689 | 384332 | Deleted |
| W58/23 | Seabank Road | 330940 | 393447 | New |
| 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 | Current |
|  |  |  |  |  |
| \*W09 relocated to new location in July 2023 | |  |  |  |

## QA/QC of Diffusion Tube Monitoring

Wirral Council uses SOCOTEC – Didcot, using a 50% TEA method of preparation for the analysis of its NO2 diffusion tubes. Monitoring during 2023 was completed in adherence with the 2023 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/air-quality/air-quality-assessment/precision-and-accuracy/#SummaryPrecision>

In the [AIR PT intercomparison scheme](https://laqm.defra.gov.uk/wp-content/uploads/2023/11/LAQM-NO2-Performance-data_Up-to-Oct-2023_V1_Final.pdf) for comparing spiked Nitrogen Dioxide diffusion tubes, SOCOTEC currently holds the highest rank of a **Satisfactory** laboratory.



### Diffusion Tube Annualisation

If annualisation was required for any non-automatic monitoring sites, the sites requiring annualisation should be clearly defined along with details of the calculation method undertaken provided in Table C.1. Annualisation is required for any site with data capture less than 75% but greater than 25%.

Table C.2 – Annualisation Summary (concentrations presented in µg/m3)

| Site ID | Annualisation Factor Birkenhead Borough Road | Annualisation Factor Tranmere | Annualisation Factor Wigan Central | Annualisation Factor Preston | Average Annualisation Factor | Raw Data Annual Mean | Annualised Annual Mean |
| --- | --- | --- | --- | --- | --- | --- | --- |
| W09 | 0.9387 | 1.0307 | 0.9953 | 0.9795 | 0.9861 | 41.6 | 41.0 |
| W09/23 | 0.9661 | 0.9414 | 0.9316 | 0.9533 | 0.9481 | 33.0 | 31.3 |
| W51 | 0.9647 | 1.0028 | 0.9853 | 0.9865 | 0.9848 | 15.2 | 15.0 |
| W54 | 0.8955 | 0.9037 | 0.8670 | 0.8688 | 0.8838 | 13.0 | 11.5 |
| W60 | 0.9495 | 0.9354 | 0.9364 | 0.9303 | 0.9379 | 21.6 | 20.2 |

### Diffusion Tube Bias Adjustment Factors

The diffusion tube data presented within the 2023 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 have applied a national bias adjustment factor of 0.77 to the 2023 monitoring data. A summary of bias adjustment factors used by Wirral Council over the past five years is presented in Table C.2.

For 2023, 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, 28 studies, that can be seen below.

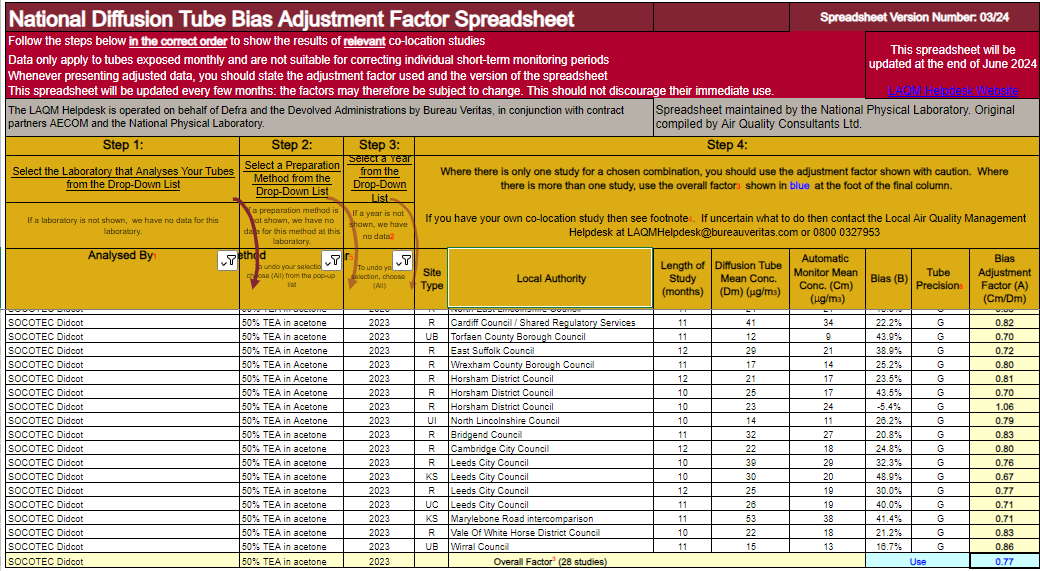


Table C.3 – Bias Adjustment Factor

|  |  |  |  |
| --- | --- | --- | --- |
| Monitoring Year | Local or National | If National, Version of National Spreadsheet | Adjustment Factor |
| **2023** | **National** | **03/24** | **0.77** |
| **2022** | **National** | **03/23** | **0.76** |
| **2021** | **National** | **03/22** | **0.78** |
| **2020** | **National** | **03/21** | **0.77** |
| **2019** | **National** | **03/20** | **0.76** |

Table C.4 – Local Bias Adjustment Calculation

|  | Local Bias Adjustment Input 1 | Local Bias Adjustment Input 2 | Local Bias Adjustment Input 3 | Local Bias Adjustment Input 4 | Local Bias Adjustment Input 5 |
| --- | --- | --- | --- | --- | --- |
| **Periods used to calculate bias** | 12 |  |  |  |  |
| **Bias Factor A** | 0.85 (0.81 - 0.9) |  |  |  |  |
| **Bias Factor B** | 17% (11% - 24%) |  |  |  |  |
| **Diffusion Tube Mean (µg/m3)** | 14.8 |  |  |  |  |
| **Mean CV (Precision)** | 4.9% |  |  |  |  |
| **Automatic Mean (µg/m3)** | 12.6 |  |  |  |  |
| **Data Capture** | 100% |  |  |  |  |
| **Adjusted Tube Mean (µg/m3)** | 13 (12 - 13) |  |  |  |  |

**Notes:**

The national combined bias adjustment factor has been used to bias adjust the 2023 diffusion tube results, this is because, as per TG22, Wirral’s monitoring programme consists of road side and kerb side monitoring sites, which differ from the urban background location of the co-location study.

### NO2 Fall-off with Distance from the Road

Wherever possible, monitoring locations are representative of exposure. However, where this is not possible, the NO2 concentration at the nearest location relevant for exposure has been estimated using the Diffusion Tube Data Processing Tool/NO2 fall-off with distance calculator available on the LAQM Support website. Where appropriate, non-automatic annual mean NO2 concentrations corrected for distance are presented in Table B.1.

No diffusion tube NO2 monitoring locations within Wirral Council required distance correction during 2023.

## 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

The site is managed by Bureau Veritas and is classified as an urban background site.

Full audits of all analysers are carried out at six-monthly intervals in the winter (January-March) and summer (July-September). In addition, audits of ozone analysers are also carried out in spring (April) and autumn (October).

Data is ratified on a three-monthly basis, and instances of suspected poor-quality data are investigated as required.

LSO duties are contracted to Ricardo who undertake 4 weekly routine calibration of the equipment.

Birkenhead Borough Road AURN

The site is managed by Bureau Veritas and is classified as an Urban Traffic site.

Full audits of all analysers are carried out at six-monthly intervals in the winter (January-March) and summer (July-September).

Data is ratified on a three-monthly basis, and instances of suspected poor-quality data are investigated as required.

The LSO duties are contracted to Ricardo who conduct fortnightly calibration checks on the

gaseous equipment.

### PM10 and PM2.5 Monitoring Adjustment

The type of PM10 and PM2.5 monitor(s) utilised within Wirral Council do not required the application of a correction factor.

**Non-LAQM monitoring results**

Wirral Council conducted air quality monitoring using five Earthsense Zephyrs sensors in 2023. These sensors are not approved for use by local authorities for compliance monitoring according to TG22, however they can provide indicative air quality data to support our work in reducing air pollution. The results for 2023 are shown in the table below.

## Table C.5 Annual Mean Results For Indicative Real Time Sensors

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| Site reference number | Data Capture % | Eastings | Northings | NO2 | PM2.5 | PM10 |
| 700037 Arrowe Park Road | 99.9 | 327021 | 387618 | 17.5 | 10.5 | 11.6 |
| 700058 New Chester Road | 99.9 | 335801 | 379987 | 16.8 | 11.0 | 12.1 |
| 700067 Wallasey Road | 100 | 330635 | 392005 | 26.5 | 11.6 | 12.8 |
| 700073 Poulton Bridge Road | 95.7 | 330211 | 391108 | 18.8 | 11.6 | 12.8 |
| 700088 Ivy Street | 78.3 | 332685 | 388736 | 18.9 | 11.0 | 12.0 |

### 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.

### NO2 Fall-off with Distance from the Road

Wherever possible, monitoring locations are representative of exposure. However, where this is not possible, the NO2 concentration at the nearest location relevant for exposure has been estimated using the NO2 fall-off with distance calculator available on the LAQM Support website. Where appropriate, automatic annual mean NO2 concentrations corrected for distance are presented in Table A.3.

No automatic NO2 monitoring locations within Wirral Council required distance correction during 2023.

# 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 2024** | **Figure No. D1** |

## Figure D.2 – Map of Automatic Monitoring Site

|  |  |  |
| --- | --- | --- |
|  | **Legend**    **AURN** | |
| **Location: Tranmere** | |
| **AURN Tranmere**  **CM1 – AURN Tranmere** | |
|
| **Date: May 2024** | **Figure No. D2** |

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

|  |  |  |
| --- | --- | --- |
|  | **Legend**  **Diffusion tube location** | |
| **Location: Bromborough and Eastham** | |
| **Diffusion Tube Locations**  **W2 – New Chester Road, Eastham**  **W47 – Bridle Road, Eastham**  **W53 – Moorland Avenue, Raeburn Entrance**  **W54 – Moorland Avenue** | |
|
| **Date: May 2024** | **Figure No. D3** |

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

|  |  |  |
| --- | --- | --- |
|  | **Legend**  **Diffusion tube location** | |
| **Location: Birkenhead** | |
| **Diffusion Tube Locations**    **W23/23 – Argyle Street South**  **W24 – Conway Street**  **W39/21 – Chester Street**  **W49 – Cross Street** | |
|
| **Date: May 2024** | **Figure No. D4** |

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

|  |  |  |
| --- | --- | --- |
|  | **Legend**  **Diffusion tube location** | |
| **Location: Birkenhead** | |
| **Diffusion Tube Locations**    **W31 – Canning Street**  **W37 – Corporation Road**  **W65 – Tower Road** | |
|
| **Date: May 2024** | **Figure No. D5** |

## 

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

|  |  |  |
| --- | --- | --- |
|  | **Legend**  **Diffusion tube location** | |
| **Location: Wallasey** | |
| **Diffusion Tube Locations**  **W3/19 – Leasowe Road**  **W14/21 – Wallasey Road**  **W17 – St Albans Road**  **W41 - St Georges Road**  **W61 – Green Lane, Greenleas Primary**  **W62 – Greenleas Road** | |
|
| **Date: May 2024** | **Figure No. D6** |

|  |  |  |
| --- | --- | --- |
|  | **Legend**  **Diffusion tube location** | |
| **Location: Wallasey** | |
| **Diffusion Tube Locations**  **W58 – Seabank Road**  **W63 – Manor Lane, Liscard Primary**  **W64 – Withens Lane, Liscard Primary** | |
|
| **Date: May 2024** | **Figure No. D7** |

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

## Figure D.8 – 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 2024** | **Figure No. D8** |

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

|  |  |  |
| --- | --- | --- |
|  | **Legend**  **Diffusion tube location** | |
| **Location: Seacombe / Poulton** | |
| **Diffusion Tube Locations**  **W22 – Birkenhead Road**  **W25 – Dock Road**  **W35 – Vernon Avenue**  **W36/21 – Geneva Road**  **W48 – Wheatland Lane**  **W50 – Parry Street** | |
|
| **Date: May 2024** | **Figure No. D9** |

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

|  |  |  |
| --- | --- | --- |
|  | **Legend**  **Diffusion tube location** | |
| **Location: Moreton** | |
| **Diffusion Tube Locations**  **W8 – Moreton Cross, Moreton** | |
|
| **Date: May 2024** | **Figure No. D10** |

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

|  |  |  |
| --- | --- | --- |
|  | **Legend**  **Diffusion tube location** | |
| **Location: Heswall** | |
| **Diffusion Tube Locations**  **W32 – Telegraph Road, Heswall** | |
|
| **Date: May 2024** | **Figure No. D11** |

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

|  |  |  |
| --- | --- | --- |
|  | **Legend**  **Diffusion tube location** | |
| **Location: West Kirby** | |
| **Diffusion Tube Locations**  **W44 – Meols Drive, West Kirby** | |
|
| **Date: May 2024** | **Figure No. D12** |

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

|  |  |  |
| --- | --- | --- |
|  | **Legend**  **Diffusion tube location** | |
| **Location: Prenton** | |
| **Diffusion Tube Locations**  **W4 – Borough Road**  **W9 – Woodchurch Road**  **W21 – Singleton Avenue**  **W33/19 – Storeton Road** | |
|
| **Date: May 2024** | **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**  **W55 – Norbury Ave**  **W56 – Norbury Ave**  **W57 – Pulford Road** | |
|
| **Date: May 2024** | **Figure No. D14** |

|  |  |  |
| --- | --- | --- |
|  | **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 2024** | **Figure No. D15** |

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

|  |  |  |
| --- | --- | --- |
|  | **Legend**  **Diffusion tube location** | |
| **Location: Higher Bebington / Bromborough** | |
| **Diffusion Tube Locations**  **W28 – Church Road**  **W42 – New Chester Road, Bromborough** | |
|
| **Date: May 2024** | **Figure No. D16** |

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

|  |  |  |
| --- | --- | --- |
|  | **Legend**  **Diffusion tube location** | |
| **Location:** | |
| **Diffusion Tube Locations**  **W43 – Whetstone Lane**  **W51 – Mount Grove, Christchurch School**  **W52 – Brattan Rd, Christchurch School** | |
|
| **Date: May 2024** | **Figure No. D17** |

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

‘’’

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

|  |  |  |
| --- | --- | --- |
|  | **Legend**  **Diffusion tube location** | |
| **Location: Poulton** | |
| **Diffusion Tube Locations**  **W29/20 – Mill Lane, Poulton** | |
|
| **Date: May 2024** | **Figure No. D18** |

## Figure D.19 – 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 2024** | **Figure No. D19** |

# Appendix E: Summary of Air Quality Objectives in

# England

Table E.1 – Air Quality Objectives in England[[7]](#footnote-8)

| Pollutant | Air Quality Objective: Concentration | Air Quality Objective: Measured as |
| --- | --- | --- |
| Nitrogen Dioxide (NO2) | 200µg/m3 not to be exceeded more than 18 times a year | 1-hour mean |
| Nitrogen Dioxide (NO2) | 40µg/m3 | Annual mean |
| Particulate Matter (PM10) | 50µg/m3, not to be exceeded more than 35 times a year | 24-hour mean |
| Particulate Matter (PM10) | 40µg/m3 | Annual mean |
| Sulphur Dioxide (SO2) | 350µg/m3, not to be exceeded more than 24 times a year | 1-hour mean |
| Sulphur Dioxide (SO2) | 125µg/m3, not to be exceeded more than 3 times a year | 24-hour mean |
| Sulphur Dioxide (SO2) | 266µg/m3, not to be exceeded more than 35 times a year | 15-minute mean |

# 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 |
| AQTECH | Air Quality Technical Group |
| ASR | Annual Status Report |
| AURN | Automatic Urban Rural Network |
| BSIP | Bus Service Improvement Plan |
| CA | Combined Authority |
| CMCU | Central Management and Co-ordination Unit |
| CATN | Core Active Travel Network |
| 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 |
| DfT | Department for Transport |
| EA | Environment Agency |
| ECEAP | Environment and Climate Emergency Action Plan |
| EU | European Union |
| FDMS | Filter Dynamics Measurement System |
| HVO | Hydro-treated vegetable oil |
| HSL | Health and Safety Laboratory |
| ITB | Integrated Transport Block |
| JSNA | Joint Strategic Needs Assessment |
| LAQM | Local Air Quality Management |
| LCR | Liverpool City Region |
| LCRCAQ | Liverpool City Region and Cheshire Air Quality Group |
| LCWIP | Local Cycling and Walking Infrastructure |
| LSO | Local Site Operator |
| NO2 | Nitrogen Dioxide |
| NOx | Nitrogen Oxides |
| NPPF | National Policy Planning Framework |
| OLEV | Office for Low Emission Vehicles |
| OZEV | Office for Zero Emission Vehicles |
| PHE | Public Health England |
| PM10 | Airborne particulate matter with an aerodynamic diameter of 10µm or less |
| PM2.5 | 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 |
| SO2 | Sulphur Dioxide |
| STEP | Sustainable Transport Enhancement Programme |
| SUD | Sustainable Urban Development |
| UKHSA | UK Health Security Agency |
| UDP | Unitary Development Plan |
| UN | United Nations |
| WHO | World Health Organisation |
| WTSO | Walk To School Outreach |

# References

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3. Defra. Environmental Improvement Plan 2023, January 2023 [↑](#footnote-ref-4)
4. Defra. Air Quality Strategy – Framework for Local Authority Delivery, August 2023 [↑](#footnote-ref-5)
5. DfT. The Road to Zero: Next steps towards cleaner road transport and delivering our Industrial Strategy, July 2018 [↑](#footnote-ref-6)
6. Defra. Air Quality Strategy – Framework for Local Authority Delivery, August 2023 [↑](#footnote-ref-7)
7. The units are in microgrammes of pollutant per cubic metre of air (µg/m3). [↑](#footnote-ref-8)