



**WIRRAL
INTELLIGENCE
SERVICE**

Environmental Health JSNA: Air Quality

Public Health

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Environmental Health JSNA: Air Quality

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Background to JSNA – Joint Strategic Needs Assessment

What is a JSNA?

A Joint Strategic Needs Assessment, better known as a JSNA, is intended to be a systematic review of the health and wellbeing needs of the local population, informing local priorities, policies and strategies that in turn informs local commissioning priorities that will improve health and wellbeing outcomes and reduce inequalities throughout the Borough.

Who is involved?

Information from Council, NHS and other partners is collected and collated to inform the JSNA and this reflects the important role that all organisations and sectors have (statutory, voluntary, community and faith) in improving the health and wellbeing of Wirral's residents.

About this document

This JSNA section looks to contain the most relevant information on the topic and provides an overview of those related key aspects

How can you help?

If you have ideas or any suggestions about these issues or topics then please email us at wirralintelligenceservice@wirral.gov.uk or go to <https://www.wirralintelligenceservice.org/>

Version Number	Date	Authors
Version 1	October 2022	Zara Hansen, Victoria Chadderton, Jennifer McKeown, Colin Irlam, Emma Hopkins, Lucy Northey, Rhian Hughes, Carl Amos, Elspeth Anwar, John Highton Document updated October 2022 from last version written by Sophie Patterson November 2019

Content overview

Abstract	Air pollution is the most significant environmental risk to public health. This JSNA presents a summary of key air pollutants, the impact on health and priority actions in Wirral.
Intended or potential audience	External <ul style="list-style-type: none">• Wirral Residents, Businesses, Partner organisations• Wirral partners via Health Protection Forum• Public Health Departmental Management Team• Environmental Health Departmental Management Team
Links with other topic areas	Chronic Obstructive Pulmonary Disease and Asthma , Cardiovascular Disease , Cancer , Health in Children , Older People , Diabetes , Obesity , Dementia , Health Protection , Transport and Climate & Health

Key findings

- Air pollution is the greatest single environmental risk to public health. Air pollutants that most significantly impact public health include particulate matter (PM_{2.5}) and nitrogen dioxide (NO₂).
- Air pollution can compromise health outcomes, leading to a range of illnesses, increased hospital admissions and premature deaths.
- Estimating the impact of air pollution on health locally is challenging. However, in 2021, [Office for Health Improvement and Disparities](#) estimated that the fraction of deaths attributable to particulate air pollution in Wirral (4.3%) was lower than the North West (4.5%) and England (5.1%).
- Whilst air pollution is harmful to everyone, adverse effects fall disproportionately on the most marginalised and vulnerable.
- In January 2022, the number of NO₂ diffusion tubes monitoring air quality across Wirral was 55. Check [here](#) for a map of the current locations. This is in addition to two DEFRA AURN stations monitoring NO₂ levels.
- In 2021, none of these NO₂ monitors identified an exceedance of the objective target levels. Over the last 7 years most monitoring sites have shown a downward trend in concentrations.
- In the last 5 years, PM_{2.5} annual mean levels have been consistently 7-8 µg/m³. This is below the current UK air quality objective of 20µg/m³ but above the World Health Organisation guideline of 5 µg/m³.
- There are no air quality management areas in Wirral, however, reducing air pollutants remains a local public health priority.
- An [air quality modelling study](#) has been conducted on the proposed increases in housing and employment land in the Draft Local Plan 2021-2037. The assessment shows no local exceedances in all air pollutants at any development allocation receptors, in the future assessment year. This will be monitored as development commences.
- Climate change and air pollution are closely linked. The Council has committed to an Environment & Climate Emergency Action Plan with the target for the council and its entity being 'net carbon neutral' by 2030. This sits within the wider Wirral Cool2 strategy with the aim to make the whole of Wirral carbon neutral by 2041.
- Interventions and strategies currently running across Wirral which impact on air quality along with wider health considerations include:
 - Upgrading of public transport vehicles and electric vehicle charging points
 - Numerous schemes to increase active transport, including road safety
 - Regulations enforced for anti-idling, taxi emissions, environmental permits, and smoke control areas
 - Clean air campaigns
- An internal audit of Wirral's air quality interventions against recommendations from Public Health England (now OHID) identified concordance with guidance across several areas and suggested opportunities for further action.
- DEFRA has directed all local authorities to provide an Air Quality Strategy from 2023. The Wirral Air Quality Steering Group will commence writing the strategy in late 2022.

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Please note:

What does this JSNA consider?

Particulate matter (PM) refers to particles of both solid and liquid particles of organic and inorganic substances suspended in the air. PM₁₀ are particles measuring 10 micrometres, sign used is µm, or less, whereas PM_{2.5} is finer particles, with a diameter of less than 2.5 µm. PM originates from many sources, but the most relevant to health outcomes are traffic-generated dust (from road, brake and tyre wear) motor vehicle emissions, fossil fuel combustion and wood burning. With the increasing popularity of wood burning stoves, domestic wood burning has been recognised as an increasing contributor to PM_{2.5} emissions ([Hawkes, 2015](#)). PM can remain in the air for weeks and travel hundreds of miles.

Nitrogen dioxide (NO₂) is formed when Nitric Oxide is oxidized by Ozone (O₃) or oxygen in the atmosphere. Alternatively, it can be formed directly through combustion. The main source of NO₂ is motor vehicle emissions. Specifically, motor vehicles are responsible for 80% of roadside NO₂ emissions ([DEFRA, 2017](#)). Diesel light duty vehicles (cars and vans) are key contributors to the burden of NO₂ in the UK, with the number of diesel vehicles increasing over the past decade.

PM_{2.5} and NO₂ have the largest evidence-base for negative public health impacts of all outdoor air pollutants ([NICE, 2017](#)). Health outcomes are not routinely measured in assessments of air pollution, thus levels of ambient PM_{2.5} and NO₂ are critical indicators of exposure to outdoor air pollution ([NICE, 2017](#)).

The terms PM_{2.5} and PM₁₀ and NO₂ will be used extensively throughout this document.

What do we know?

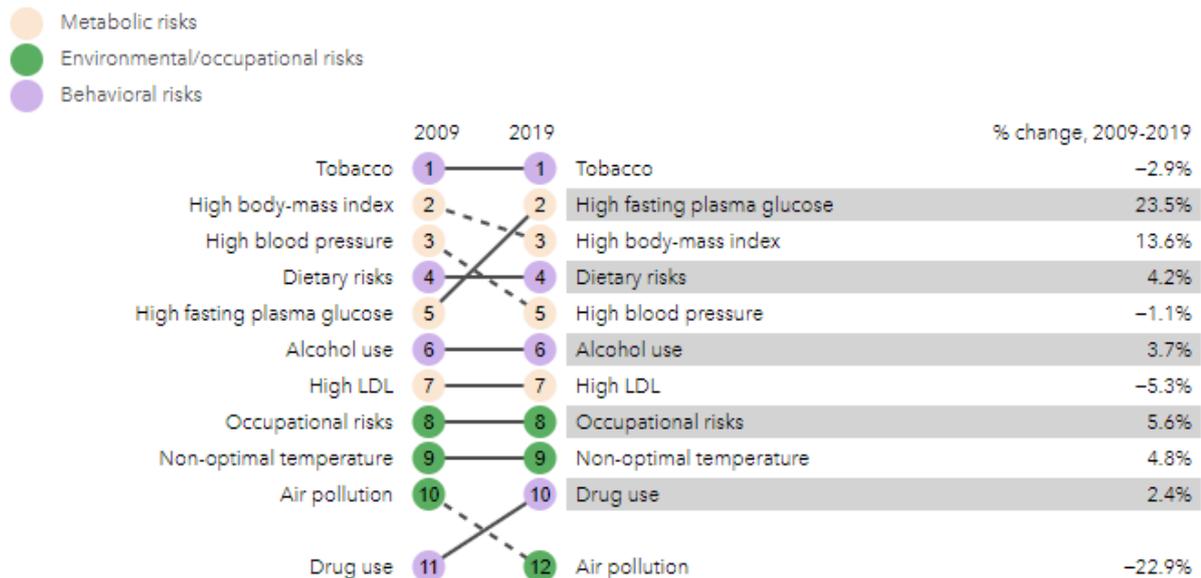
Why is this important?

Industrialisation, technological advancements and modern transportation systems have brought many benefits, however modern lifestyles continue to fuel the generation of air pollutants, which have notable health and environmental implications. Pollution, climate change, and biodiversity loss are inextricably linked and the key environmental issues we face today.

Healthcare Implications

The health impacts of pollution were the focus of the 2017 [Chief Medical Officer's annual report for England](#). Specifically, air pollution is considered to be the greatest environmental risk to public health ([Landrigan, 2017](#)). Nationally, air pollution is one of the key risk factors contributing to the burden of disease (**Figure 1**) although this risk has reduced since 2009. In 2015, air pollution was estimated to account for 2% of disability-adjusted life-years lost in England ([Newton et al, 2015](#)).

Figure 1: Top 10 risks contributing to total number of DALYs in 2019 and percentage change 2009-2019, all ages combined, England.

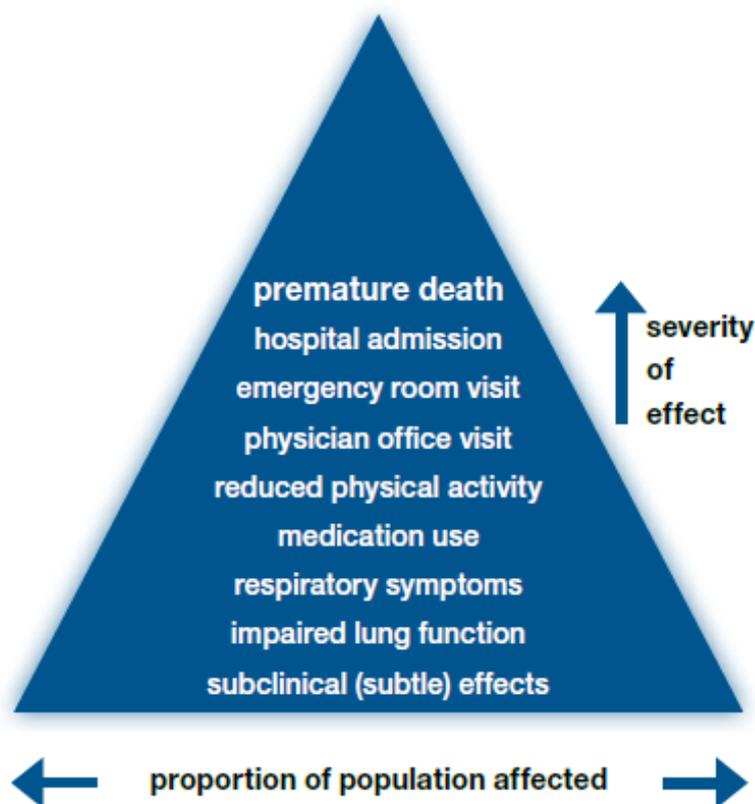


Source: <https://www.healthdata.org/united-kingdom>, from the Global Burden of Disease 2019 data.

Exposure to air pollutants has been shown to cause health problems across the life course. Short term exposure to air pollutants can precipitate exacerbations of respiratory conditions and increased hospitalisation (**Figure 2**). However, most significant health impacts arise from long-term exposure, causing increased morbidity and mortality from respiratory and cardiovascular disease ([Royal College of Physicians, 2016](#)). In 2013, the [International Agency for Research on Cancer](#) listed both outdoor air pollution and PM_{2.5} (a key component of outdoor air pollution) as carcinogens. Further details on the health risks of each type of pollutant are included in the 'Air pollution and public health' section below.

Adverse social, health and economic costs incurred through exposure to air pollution are wide ranging, and are estimated to amount to over £20 billion per year in the UK, through absence from work and school, medication costs, hospitalisation and years of life lost ([Environmental Audit Committee, 2010](#)).

Figure 2: Air Pollution Health Pyramid.



Source: World Health Organisation, [Health risk assessment of air pollution](#), General Principles, 2016

Environmental Implications

Some air pollutants can contribute to global climate change, which in turn compromises health, food and water supplies, and increases the risk of devastating environmental disasters ([Watts et al, 2015](#)) (for more information on climate change in our local area, see our [JSNA on climate and health](#)). Air pollution can damage ecosystems, compromising habitats and biodiversity. Agriculture and crop production can also be negatively impacted by air pollution, which has implications for food supply. Mobilising efforts to reduce air pollution would support national aims to promote sustainability to ensure resources are available to future generations. On a global scale, efforts to reduce air pollution are in line with a number of key sustainable development goals set by the United Nations ([Landrigan 2017](#)).

Legal Implications

The UK is governed by overlapping pieces of legislation at a national and European level. These include the [Air Quality Standards Regulations \(2010\)](#), [The Environment \(Miscellaneous Amendments\) \(EU Exit\) Regulations 2020](#), and [The Environment Act 2021](#).

The Government has also committed to the [UNECE Gothenburg protocol](#) and the [EU National Emission reduction Commitments Directive](#) (2016), pledging to reduce five key pollutants (nitrogen oxides, fine particulate matter, sulphur dioxide, non-methane volatile organic compounds, and ammonia) below targets from 2020 to 2029.

At a global level, the World Health Organisation also has [Air Quality guidelines](#).

Targets set by these different pieces of legislation and guidance are outlined in the targets section.

Air Pollution and Public Health

A 2018 report from the Committee on the Medical Effects of Air Pollutants (COMEAP) estimated that long-term exposure to air pollution was linked to between 28,000-36,000 premature deaths in the UK each year ([COMEAP, 2018](#)). In a landmark case at the end of 2020, Ella Adoo-Kissi-Debrah became the first person in the UK to have air pollution listed as a cause of death on her death certificate. Ella was 9 years old when she died in 2013 having lived near a major road. This ruling brings the consequences of air quality into sharp focus, and it is worth noting that historical exposure to air pollution when air quality was worse may only manifest health impacts decades later.

Particulate Matter (PM)

The small size of PM_{2.5} means they can be easily inhaled into the lungs.

Short term exposure to fine particulates can exacerbate wheeze, bronchitis and asthma, leading to increased hospitalisation. Particulates may also carry surface-absorbed carcinogenic compounds into the lungs.

The mechanism of action of fine particulates on the respiratory system is believed to be through triggering inflammatory responses, hyper-responsiveness, and remodelling of the airways, with impacts being more severe among individuals with pre-existing lung disease ([Royal College of Physicians, 2016](#)).

In terms of cardiovascular impacts, PM_{2.5} triggers deposition of plaques in the arteries increasing the risk of stroke, angina, and heart attacks.

The health impacts of air pollutants are experienced throughout the life course. PM_{2.5} is small enough to cross the placental barrier and can influence foetal development as well as diverse health effects in children ([Johnson et al, 2021](#)).

There is also some evidence to suggest that long term exposure to PM₁₀ and PM_{2.5} is associated with increased risk of developing adult depression ([Braithwaite et al, 2019](#)). A report by COMEAP in 2022 reviewed 70 studies and found that air pollution contributes to cognitive decline and dementia, likely through effects on circulation ([COMEAP, 2022](#)).

Nitrogen Dioxide (NO₂)

Short-term exposure to NO₂ leads to irritation and inflammation of the airways, which can trigger a cough, wheeze, asthma or bronchitis, leading to impaired health, work absences or hospitalisation. More prolonged exposure to NO₂ can impair the lung development of children, reduce lung function in adults, and increase respiratory infections, putting further pressure on healthcare services ([Royal College of Physicians, 2016](#)).

Prolonged NO₂ exposure has been shown to lead to increased mortality from respiratory causes. In 2017, DEFRA estimated that NO₂ exposure reduced life expectancy in the UK by approximately 5 months, representing almost 23,500 deaths per year ([DEFRA, 2017](#)). There is some evidence to suggest that exposure to NO₂ during childhood can impair neurocognitive development, and that long term exposure to NO₂ is associated with increased risk of developing type II diabetes ([Royal College of Physicians, 2016](#)).

Indoor Air Quality

Most air quality legislation in the UK is concerned with ambient (outdoor) air quality. However, the contribution of indoor air pollutants from our homes and workplaces to morbidity and mortality is also relevant.

Estimates suggest that active urban Europeans spend around 85-90% of their time indoors, including time spent at home, in work and commuting ([WHO, 2013](#)). Notably, those who are most vulnerable to the impacts of air pollution (through ill health, or those who are very elderly or young) are more likely to spend a larger proportion of their time indoors, whether in private residences, hospitals, residential homes, care homes or nurseries. It is estimated that exposure to indoor air pollutants costs more than 204,000 healthy life years in the UK annually, with impacts manifested through an increased prevalence of asthma, lung cancer, and cardiovascular disease ([Hanninen & Asikainen, 2013](#)), and annual healthcare costs amounting to “tens of millions of pounds” ([Royal College of Physicians, 2016](#)).

Outdoor air pollutants can move into indoor spaces through air exchange, compromising indoor air quality. In indoor environments, people can also be exposed to air pollution generated from tobacco smoke, including ultrafine PM, CO, NO₂, naphthalene and benzo[a]pyrene and benzene. While the ban on smoking in public spaces has reduced exposure to second-hand smoke, this remains an issue in private establishments.

Indoor air pollution can also be generated through the burning of solid fuels, through unvented gas appliances or combustion equipment, releasing NO₂, CO and particulates. Other sources of indoor air pollution include building materials, textiles and chemicals or solvents ([WHO, 2013](#)).

Poor indoor air quality may be exacerbated in low quality housing, with old appliances, damp and poor ventilation, where mould, mildew or pests may accumulate. Indoor air quality may be compromised by efforts to conserve energy in the home, leading to reduced ventilation. Monitoring and enforcing air quality in private establishments remains a considerable challenge due to the lack of applicable regulations ([Royal College of Physicians, 2016](#)).

Building regulations require minimum standards for ventilation, construction materials and heating appliances in new build / adapted premises. Housing legislation addresses hazards such as mould, CO etc. in rented properties.

In the workplace, employees may be exposed to air pollution or inhaled hazards. In the UK there are regulations in place to protect workers. [Specifically, the Health and Safety at Work Act \(1974\)](#) and [Control of Substances Hazardous to Health \(COSHH\) Regulations](#) (2002) regulate inhalation of dangerous substances at work.

Various national projects are currently underway to determine the impact of indoor air pollution on public health in the UK. In October 2018, the All Party Parliamentary Group for Healthy Homes and Buildings released the white paper “[Building our Future Laying the Foundations for Healthy Homes and Buildings](#)”, which included recommendations around air quality considerations in housing and building renovation. The National Institute for Health and Care Excellence (NICE) produced a guideline entitled [Indoor air quality at home](#) (2020). The guidance covers prioritising indoor air quality in local strategy or plans, raising awareness of the issues, embedding air quality considerations into building design, and ensuring that relevant standards and regulations are adhered to.

Inequalities in pollution exposure

Higher levels of deprivation are associated with higher levels of exposure to air pollution in workplaces and communities ([Fairburn et al, 2019](#)). There is also evidence that some ethnic minority groups experience higher levels of exposure to air pollutants ([Fecht et al, 2015](#)) including higher exposure in children (Deivanayagam, 2021).

Facts, figures and trends (Wirral and beyond)

Wirral Council's area is located on a peninsula, bordered by the River Dee and the River Mersey. The unique geography of Wirral influences the distribution of key pollutants within the borough. The east side of the peninsula, adjacent to the River Mersey, is urbanised with a large port area and numerous industries.

The west side of the peninsula is more rural, with large green belt areas of land. A major motorway runs through the peninsula, and several rail lines and main roads connect the local population.

There are rail and road tunnel links between Wirral and Liverpool. Main urban centres (Birkenhead, New Brighton, Wallasey, and Prenton) are primarily located towards the East of the peninsula, centred on the more deprived regions of the borough.

Along with five other local councils, Wirral is part of the wider Liverpool City Region (LCR) combined authority.

Air pollutants monitored in Wirral

In accordance with national requirements, Wirral's Local Air Quality Management Programme monitors air pollutants at any site considered to represent a relevant exposure to the public.

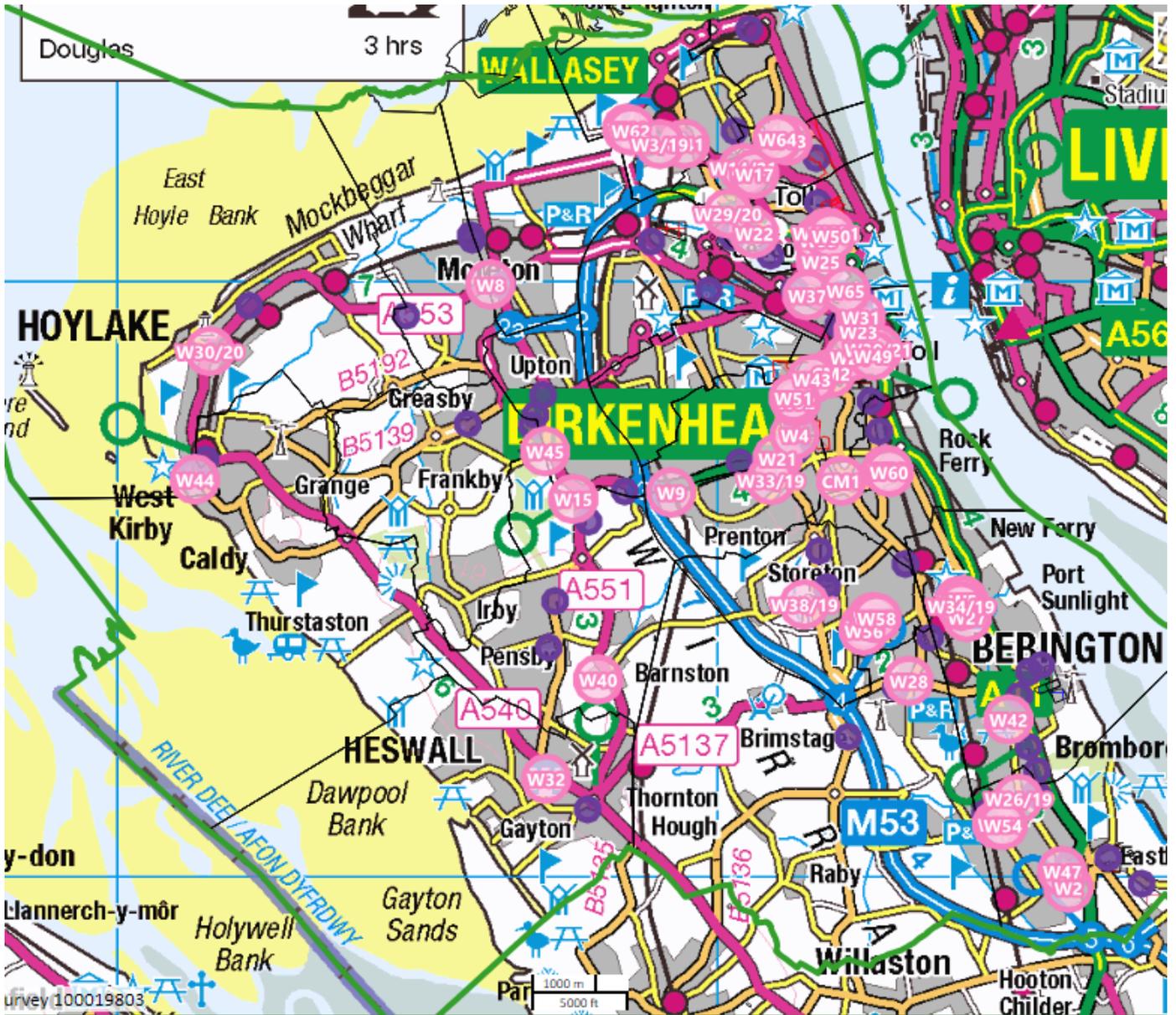
Three key air pollutants are monitored in Wirral:

- [Nitrogen dioxide \(NO₂\)](#)
- [Particulate matter_{2.5} \(PM_{2.5}\)](#)
- [Ozone](#)

NO₂ is the most closely monitored pollutant, in line with national priorities to reduce NO₂ concentrations below European Union targets ([DEFRA, 2020](#)). At the time of writing, Wirral Council utilised 55 passive (non-automatic) diffusion tubes and two Urban Background Air Quality Monitors to measure NO₂ (**Map 1**).

Monitoring locations were reviewed at the end of 2020 with some changes made due to accessibility issues in the main. Four additional sites were added following recommendations made in the [Air Quality Modelling Study \(Wirral Council 2021a\)](#), which was commissioned as part of the development of the local plan. In October 2021, an additional fourteen new monitoring sites were introduced, to monitor the air quality around various Primary Schools on the borough. The selected schools are currently taking part or are intending to take part in the "school streets" and "liveable neighbourhoods schemes".

Map 1: Location of 55 Nitrogen Dioxide (NO₂) monitors capturing air quality readings in Wirral in 2022.



Source: http://s03vs-barbossa/WML8_internal/map.aspx?mapname=EnvHealthAnalysis

Note: The location and number of monitors reflects urban density and major transport routes

The two Urban Background Air Quality Monitors operational in Wirral are automatic, real-time monitors which form part of the Automatic Urban Rural Network (AURN). Both provide continuous, real time NO₂ measurements, and one also monitors PM_{2.5} and Ozone.

Ozone is generated over time by a reaction between pollutants in the atmosphere, commonly nitrogen oxides and volatile organic compounds (VOCs), in the presence of sunlight, and can have negative impacts on lung function and mortality ([WHO, 2005](http://www.who.int)).

Ozone is excluded from local air quality management as it is transported across long ranges, meaning emissions fuelling the generation of ozone are mostly from non-local sources.

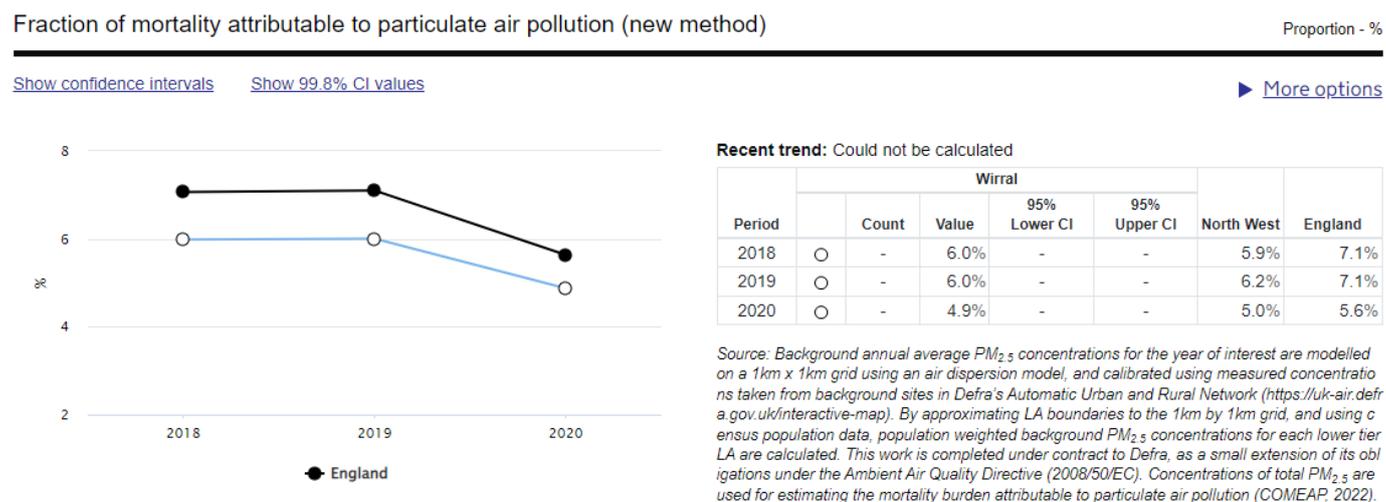
Wirral discontinued monitoring PM₁₀ in 2009 and SO₂ in 2007. In 2006, the annual maximum SO₂ concentration in Wirral was 56 µg/m³, with an annual mean of 6 µg/m³, both well below the recommended targets.

In March 2022, five real time air quality monitors have been installed across the borough. These monitors provide indicative pollution level data on a range of pollutants, including PM₁₀, PM_{2.5} and NO₂.

Estimating the health impact of air pollution for Wirral's population presents some challenges. There are no routine health data that measure the combined effects of the main pollutants.

Public Health England estimates that 4.9% of deaths in Wirral in 2020 were attributable to particulate air pollution. This would represent 210 of the total 4,281 Wirral deaths reported by the Office of National Statistics that year. This estimated attributable fraction for Wirral is lower than reported for the North West (5.0%) and England (5.6%) in 2020 (**Figure 3**).

Figure 3: Fraction of mortality attributable to particulate air pollution for Wirral, North West and England (2018 - 2020).



Source: [Public Health England Fingertips, 2022](#)

Notes: Fraction of annual all-cause adult mortality attributable to anthropogenic (human-made) particulate air pollution (measured as fine particulate matter, PM_{2.5}).

Local, community and stakeholder views

The Wirral Council Air Quality Group was established in 2014 and unites representatives from the Council's Fleet Management team, Environmental Health, Public Health, Transport, Sustainability, Licensing and Forward Planning departments across Wirral Council. The group aims to meet three-monthly to engage in multidisciplinary discussions around air quality issues within the region and to identify key areas for co-ordinated action. The group was unable to meet in 2020-21 due to pandemic staffing pressures but has recommenced in 2022.

On a regional scale, Wirral Council is also represented in the Liverpool City Region's (LCR) Air Quality Technical Group (AQTECH).

The need to encourage engagement and participation with the community and stakeholders in local Air Quality action has been recognised. Work is ongoing to utilise opportunities, such as school projects, 'Be the Key' Clean Air Campaign and National Clean Air Day (discussed below).

What are we expecting to achieve? (Targets)

Understanding and monitoring the composition, levels and key sources of air pollution is important to inform policy decisions and interventions to improve air quality and public health. Air pollutants consist of natural or man-made substances that impact the composition of the air we breathe. Road transport, fuel combustion, industrial processes and agriculture are important sources of air pollution in the UK.

The [Air Quality Standards Regulations 2010](#) mandate national-level monitoring of outdoor air pollutants in the UK:

- Particulate Matter (PM₁₀ and PM_{2.5})
- Nitrogen Dioxide (NO₂)
- Benzene
- 1,3 Butadiene
- Carbon Monoxide (CO)
- Lead
- Sulphur dioxide (SO₂)
- Ozone (O₃)
- Benzo(a)pyrene

All Local Authorities in the UK have a duty under the [Environment Act 1995 Part IV](#) to review and assess local air quality. The [EU's Air Quality Directive](#) defines standards by which air pollution can be assessed. The air quality objectives are set out in the [Air Quality Standards Regulations 2010 \(Table 1\)](#) as amended by the Environment (Miscellaneous Amendments)(EU Exit) Regulations 2020 and the Environment Act 2021.

Wirral has previously monitored for Sulphur dioxide and Benzene, but as levels were far below the national objectives, it was determined after review that monitoring for these pollutants was no longer required. Following review, the UK decided to retain Benzene, 1,3-Butadiene, Carbon Monoxide and Lead in regulations for England and Wales. However, as all the objectives for these pollutants have been met for several years and are well below limit values, local authorities in England and Wales do not have to report on these pollutants unless local circumstances indicate otherwise. Wirral has not identified circumstances for which reporting is required.

[DEFRA Local Air Quality Management Technical Guidance TG22](#) (updated in 2022) advises Local Authorities to undertake air quality monitoring in locations of relevant exposure, this would include residential building facades close to busy roads or junctions and point sources of industrial emissions.

These locations undergo periodic review and modification. Local Authorities must determine whether the air quality objectives are likely to be achieved. Where exceedances are considered likely, the local authority must then declare an [Air Quality Management Area \(AQMA\)](#) and prepare an Air Quality Action Plan (AQAP) setting out the measures it intends to put in place in pursuit of the objectives.

The Air Quality Standards Regulations 2010 (as amended) require a maximum concentration for PM_{2.5} of 20µg/m³, with the World Health Organisation target set lower at 5µg/m³.

The Environment Act 2021 establishes a legally binding duty on government to bring forward at least two new air quality targets in secondary legislation by 31 October 2022.

The new proposed legal limits for PM_{2.5} are:

- a legally binding target to reduce levels of fine particulate matter (PM_{2.5}) to 10µg/m³ by 2040.
- The new targets also include a 35% reduction in population exposure to PM_{2.5} by 2040, compared to levels in 2018.

The proposed new legal limits will need to be laid as draft Statutory Instruments by 31 October 2022 and will come into force once approved by Parliament.

Current EU and UK Regulations require that NO₂ levels should not exceed an average annual mean of 40 µg/m³ at points of relevant exposure.

The UK met the limit value for hourly mean nitrogen dioxide (NO₂) in 42 out of 43 zones ([DEFRA, 2020](#)). Ten zones were compliant with the limit value for annual mean NO₂. The remaining 33 zones exceeded this limit value. Implementation of measures as a result of the 2017 UK Plan for Tackling Roadside Nitrogen Dioxide Concentrations is in progress, with the effect on compliance expected to be demonstrated in subsequent years.

For both PM_{2.5} and NO₂, no safe level of exposure has been identified (where no negative health impacts occur). As such, continuing to reduce NO₂ levels below identified targets remains a key public health priority.

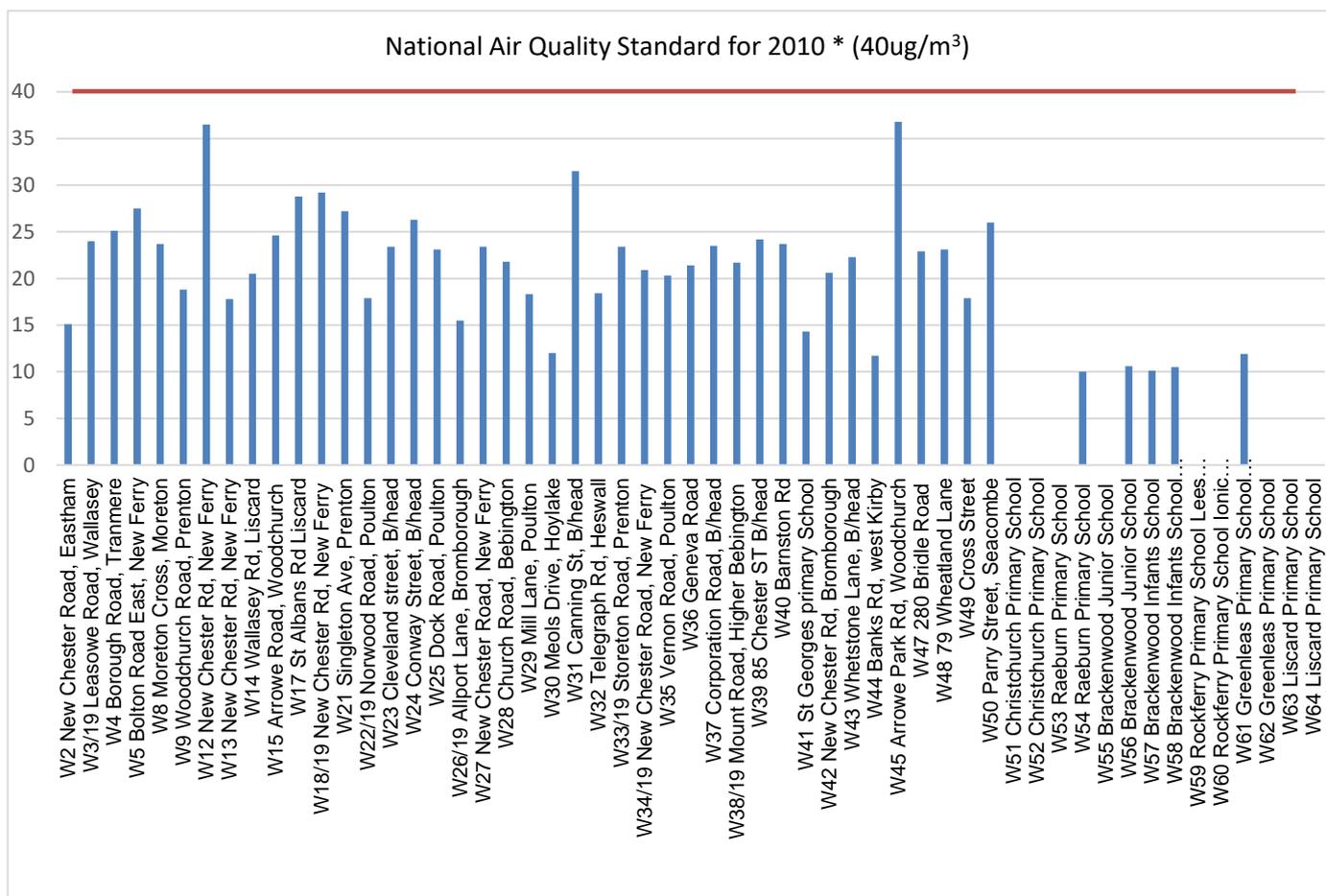
Key air quality objectives within the Air Quality Standards Regulations (as amended) can be found at https://uk-air.defra.gov.uk/assets/documents/Air_Quality_Objectives_Update.pdf

What are we achieving (Performance)

Nitrogen Dioxide

NO₂ diffusion monitors are located at traffic hotspots determined by local intelligence, historical data, and input from transportation services. NO₂ readings for the 55 monitors present in 2021 are shown in **Figure 4**.

Figure 4: 2021 Annual Average of Nitrogen Dioxide in Wirral



Source: Wirral Council Environmental Health Team.

Notes: The Annual Air Quality Objective applies to sites where there is relevant exposure e.g., facades of residential properties. Where, as in this case, monitoring is sometimes carried out at the kerbside, corrections are later applied to determine whether there are exceedances at points where there is relevant exposure to the public.

An Explanation of Adjustments Made to Monitoring Figures:

Bias:

NO₂ diffusion tubes have a limited accuracy. Therefore, there is a national scheme to compare the results of tubes placed near real time monitors with the results from those monitors. This data is collected and used to produce “bias adjustment” factors which are regularly published. This information is used by us to correct the results from our tubes and provide the most accurate figure possible.

Distance Adjustment:

It is not always possible to monitor at the point where exposure may occur. In these circumstances DEFRA provide a tool to allow us to calculate exposure levels at the point where exposure occurs. E.g. we may monitor on a lamp post and then adjust the figure to calculate what it is estimated to be at the façade of a house.

Annualisation:

Where tubes are damaged or go missing for part of the year then DEFRA provide guidance of how to estimate an annual figure.

In 2021, annual mean nitrogen dioxide (NO₂) concentrations were below the national objective in all locations.

Readings from 12 monitoring locations active between 2017-2021 demonstrate a decrease in NO₂ concentrations (**Table 1**).

Table 1: Comparison of annual mean nitrogen dioxide (NO₂) concentrations (bias adjusted and annualised) between 2017 and 2021 at 12 sites consistently monitored over this time period.

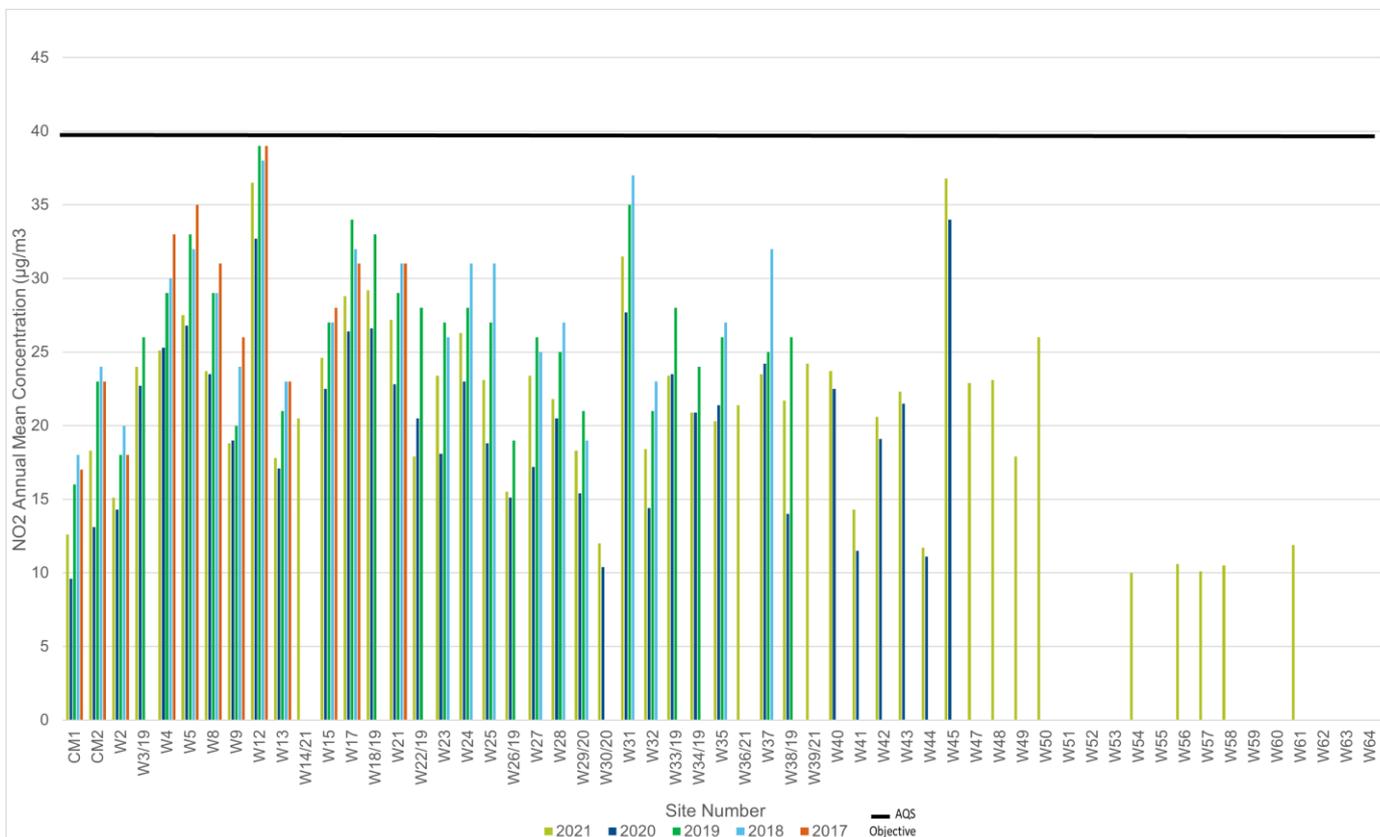
Site	2017 NO2 Result	2021 NO2 Result	% Change 2017-2021	
W2	18	15.1	19%	Decrease
W4	33	25.1	31%	Decrease
W5	35	27.5	27%	Decrease
W8	31	23.7	31%	Decrease
W9	26	18.8	38%	Decrease
W12	39	36.5	7%	Decrease
W13	23	17.8	29%	Decrease
W15	28	24.6	14%	Decrease
W17	31	28.8	8%	Decrease
W21	31	27.2	14%	Decrease
CM1	17	12.6	35%	Decrease
CM2	23	18.3	26%	Decrease

Source: Wirral [Air Quality Monitoring ASR 2022](#) and provisional data provided by Environmental Health.

Notes: The concentration of an air pollutant (e.g. NO₂) is given in **micrograms (one-millionth of a gram) per cubic meter** air or µg/m³. W – plus number – relates to the site reference for each air quality monitoring unit. *2021 data is at this time Provisional with data and being validated at a later date.

A more detailed annual trend in NO₂ concentrations across the monitoring sites between 2017 and 2021 is illustrated below (**Figure 5**). When annual NO₂ concentrations are shown for the past seven years, most sites show a downward trend in annual NO₂ concentrations during this period.

Figure 5: Graph showing change in annual mean nitrogen dioxide (NO₂) concentration (bias adjusted and annualised) over time at the diffusion monitors across Wirral that were operational between 2017-2021



Source: Data obtained from [Wirral Air Quality Monitoring ASR 2022](#) and Wirral Council Environmental Health team.

Particulate Matter (PM_{2.5})

In line with national air quality management guidance, PM_{2.5} monitoring is undertaken by one Urban Background Air Quality Monitor based in Victoria Park, Tranmere. From 2017 to 2021, the annual mean concentrations of PM_{2.5} were 7 µg/m³, 8 µg/m³, 8 µg/m³, 7 µg/m³, 7 µg/m³, respectively.

From 2014 to 2020 the annual mean concentrations of PM_{2.5} have remained below both the World Health Organisation and the European Union standards. In 2021, the WHO reduced their air quality guidance limit level from 10 µg/m³ to 5 µg/m³ for PM_{2.5}, Wirral therefore exceeded this recommended limit value in 2021.

These results are taken from hourly measured data and are not bias adjusted. It is important to acknowledge that this monitoring is undertaken at an urban background site and may not be representative of roadside readings, where PM_{2.5} concentrations are likely to be higher.

What is this telling us?

Wirral currently has no [Air Quality Management Areas \(AQMA\)](#), and annual nitrogen dioxide (NO₂) concentrations have decreased across the majority of diffusion monitors in the Borough over the past year. However, it is important to keep longer term trends under review as weather, roadworks etc. may affect short term year on year comparisons. Particulate matter (PM_{2.5}) levels in Wirral remain below both European Union (EU) but are now above the World Health Organisation (WHO) recommendations, due to a reduction in their recommended limit value from 10 µg/m³ to 5 µg/m³ in 2021.

Current recommendations from both the EU and WHO suggest there is no safe level of exposure of PM_{2.5} and NO₂, with negative health impacts reported below the target concentrations.

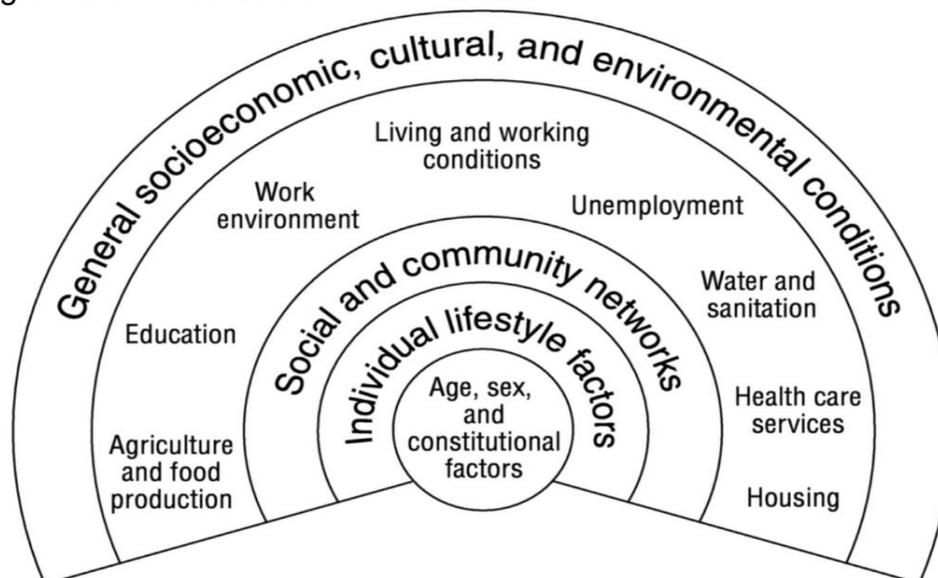
Currently Wirral has one monitor recording PM_{2.5} levels, located at an urban background site. In addition, there are five real time monitors providing indicative levels of PM_{2.5} across the borough. PM_{2.5} has the strongest evidence-base of negative impacts on health globally ([Landrigan 2017](#)). It is therefore important that PM_{2.5} continues to be represented within the Council's work programme. The Department for Environment, Food and Rural Affairs (DEFRA) guidance states that action to address PM_{2.5} should be specifically discussed with Public Health teams and addressed in the Air Quality Annual Status Report.

The 2017 Lancet Commission on Pollution and Health stressed the need for collaboration between departments to tackle the global issue of air pollution ([Landrigan 2017](#)). Evidence suggests that local action should be focused on co-benefit strategies, which not only improve air quality, but also generate sustainable improvements in wider health and social outcomes. For example, through changing transportation infrastructure we can promote active travel, thereby reducing harmful emissions, increasing physical activity and enabling healthy weight.

Groups most at risk

Air pollution does not influence health outcomes in isolation, but interacts with other health determinants, including socio-economic status, diet and climate ([Royal College of Physicians, 2016](#)) (**Figure 6**). Globally, negative health impacts of air pollution are disproportionately experienced by marginalised and low income communities ([Landrigan 2017](#)).

Figure 6: Dahlgren and Whitehead's model of the wider determinants of health.



Source: [Dahlgren-Whitehead model of health determinants \(1991\)](#)

The report by the Royal College of Physicians on impacts of air pollution across the life course identified three groups most vulnerable to the effects of air pollution:

1. **Individuals at extremes of age or with pre-existing cardiovascular or respiratory illnesses:** While exposure to air pollution can have health impacts across the life-course, evidence suggests that the elderly people and those with pre-existing diseases are more sensitive to the effects of poor air quality ([Pye et al, 2006](#)). The [Marmot Review \(2010\)](#) highlighted that individuals in deprived areas experience more adverse health effects at the time level of exposure compared to those from less deprived areas and that this was due, in part, to the higher prevalence of underlying cardio-respiratory diseases including Chronic Obstructive Pulmonary Disease (COPD), bronchitis, emphysema and asthma. These conditions may be exacerbated by poor air quality in certain geographical areas.

2. **Individuals living or working in close proximity to main roads:** Given that traffic emissions are the greatest source of nitrogen dioxide (NO₂) in the UK, it is no surprise that individuals living or working close to major traffic thoroughfares are exposed to higher levels of air pollution ([DEFRA, 2019](#)).
3. **Individuals living in more deprived regions:** An examination of the links between air quality and social deprivation in the UK on behalf of DEFRA and other organisations ([King & Steadman 2020](#)) suggested that NO₂ and PM₁₀ concentrations are higher in more deprived areas, largely due to the road transport sources. Further analysis has been undertaken which shows that in deprived areas there was lower car ownership, however such areas still experience high pollution levels, suggesting that deprived areas are suffering further through the actions of the population of car owners. Whilst the research does not further examine this matter in relation to car ownership, it would be fair to assume that car owners are travelling through more deprived areas to access employment, retail etc.

Key inequalities

Deprived communities are more likely to be located in close proximity to busy roads, congested areas and traffic hotspots; this would indicate that people who live in built-up areas are more likely to suffer negative health effects of air pollution.

Similarly, previous work in Wirral has shown that those living in the most deprived communities are more likely to live more years in ill health than individuals from comparatively wealthier areas ([Director of Public Health Annual Report, 2021](#)).

Individuals most susceptible to negative health impacts of air pollution exposure are likely to be among the most vulnerable people in society, in some cases with limited social power to alter social circumstances or individual-level risk, for example to move to a new house or make changes to their home to limit exposure to air pollution.

In recognition of these inequalities, current NO₂ air quality monitor placement in Wirral is clustered around East Wirral, recording air quality in some of the most deprived areas of the borough, with the highest concentration of main roads and the poorest air quality (**Map 1**).

Key issues and challenges

Difficulties with accurate measurement of vehicle emissions has led to the introduction of a “real driving emissions” test by the European Commission in 2017 in addition to the laboratory based “World Harmonised Light Vehicle Test Procedure” ([European Commission, 2017](#)). This testing will apply to all new vehicles but will not apply to older vehicles.

Strategies to improve air quality must be holistic in their scope to ensure changes are sustainable. Previous national recommendations for improving air quality have been largely focussed on nitrogen dioxide (NO₂) and roadside emissions ([DEFRA, 2020](#)). Monitoring coverage and air quality strategies must not overlook the importance of PM_{2.5} as a significant threat to public health.

A 2019 report from the Government’s Air Quality Expert Group has cautioned that, even if exhaust emissions from petrol and diesel cars are removed with the widespread uptake of electric vehicles, particulate matter will continue to be released from wear to roads, tyres and brakes, negatively impacting air quality. The report called for improved efforts to measure and control particulate emissions ([Air Quality Expert Group, 2019](#)).

National guidance from the Department for Environment, Food and Rural Affairs (DEFRA) has outlined the key role of local authorities in demonstrating local leadership and innovation in tackling air pollution ([DEFRA, 2020](#)). However, mobilising the magnitude of change required in the fields of transportation and planning require significant funding commitments, which is challenging to obtain in the current economic climate.

As previously discussed, accurately measuring the health impact of air pollution presents challenges. Modelled data of key air pollutants are often applied in circumstances where monitoring points providing precise readings are lacking. While modelling is a useful tool, it lacks the accuracy of readings from diffusion monitors, and may be prone to error.

The combined health impact of exposure to all pollutants is difficult to quantify using routinely available health indicators. Furthermore, exposure to air pollution has only been listed once as a cause of death on a death certificate.

There are also challenges unpicking the historical influence of exposure to air pollution in earlier decades, when air quality was worse, and monitoring and control of air quality were less rigorous. Regular monitoring of emerging health information will be required to better assess the health impact of air pollution on the health of local communities.

What are we doing and why?

Current activity and services

National recommendations emphasise the need for local leadership and local knowledge to tackle issues of air pollution, setting local authorities at the centre of the air quality improvement initiatives ([DEFRA, 2020](#)).

As part of its obligations for Local Air Quality Management, Wirral Council produces an annual air quality monitoring report. The report demonstrates that the authority has made suitable arrangements for local air quality management in the borough and has no AQMAs ([Annual Status Report, 2022](#)).

There are several interventions being prioritised within Council Departments that have potential to impact upon local air quality.

Communication and Engagement

On 20th June 2019, Wirral Council launched 'Be the Key' Clean Air Campaign, to raise awareness locally and promote individual-level behaviour change. This campaign seeks to raise awareness of anti-idling legislation, with additional priorities driven by intelligence and air quality complaints in the region.

Wirral Council Air Quality Group

As previously referenced, representatives of this group work across the Council to identify opportunities to improve air quality and to link Liverpool City Region initiatives including key local and national strategies.

The Wirral Air Quality Group continues to review and revise air quality monitor placement in the borough, drawing on traffic data and information from the Merseyside Emission Inventory. Increasing the coverage and improving the placement of air quality monitors in Wirral ensures

more accurate capture of air quality issues within communities most at risk of negative impacts of air pollution. By measuring the right pollutants in the right places, the Council can create an accurate picture of Air Quality in the Borough, with sufficient baseline data to assist in the consideration of Planning Applications.

Additionally, the Air Quality Group participated in Clean Air Day 2022 raising awareness of air quality with Wirral schools.

Air Quality Technical Group (AQTECH)

Wirral is a member of the AQTECH, which discusses relevant regional air quality issues. The AQTECH was awarded funding to develop an educational website, launched in 2019, to raise public awareness and engagement with air quality issues within the region ([Let's Clear the Air LCR](#)).

Environmental Permitting

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, including dust, into the environment are required to operate under an Environment Permit, granted by Environmental Health and the EA. Under the [Environmental Permitting Regulations 2010](#), Wirral Council has issued and monitors more than 54 permits for industrial activities across the Borough.

Environmental Health and the EA ensure that the operators of the permitted processes ensure that their undertakings are done so in accordance with the conditions as described in the Environmental Permit, this includes permitted levels of certain pollutants.

Smoke Control Areas

Smoke control areas have been established across the majority of Wirral (**Map 2**). In these areas it is illegal to emit smoke from a chimney, fixed boiler or furnace. Only authorised fuels are permitted to be used in smoke control areas, or residents could face fines of up to £1000.

objectives predicted for all pollutants considered at any development allocation receptors in the future assessment year.

The air quality modelling study made several recommendations regarding implementing air quality monitoring in several locations. These recommendations were followed, and additional monitoring was installed in April 2021. In 2022, 5 additional real time monitors have been installed and the locations were determined based on the findings of the Local Plan Air Quality modelling report ([Wirral Local Plan Air Quality Study, 2021](#)).

Within the Draft 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 and are also beneficial to local air quality. Air Quality Assessments will be required where appropriate and mitigation measures against any impact on air quality agreed through the planning application process.

Under the Environmental Permitting (England and Wales) Regulations 2016, Wirral Council has issued and monitors more than 54 permits for industrial activities regionally, including storage terminals, cement & lime, other minerals, combustion & incineration, tar & bitumen, coating, animal and plant treatment, petroleum, and solvents sector.

Transport

Electric Vehicles

The development of an electric vehicle charging network has been slow to develop in comparison to the uplift in sales of electric vehicles, although cost of vehicles is still relatively high in comparison to an internal combustion engine vehicle which means that they are not yet accessible for all households to afford to buy one. The charging of vehicles from households is also an issue where there is a lack of off street parking which restricts the ability for a chargepoint to be connect from the owners house to the vehicle without crossing the footway. The council has undertaken a pilot project that has installed 53 chargepoints on street lighting columns within the borough and is monitoring the uptake closely. The private sector has also been slow in delivering chargepoints with the majority of chargepoints within the borough located within supermarket car parks or at hotels, however a planning application has been approved for an electric vehicle charging station just off the A41 in Bromborough.

Non-Electric Vehicles

To help reduce vehicle emissions in taxis, the Licensing Team at Wirral Council operates a policy which requires, as part of any vehicle licence application, the completion of an MOT for any Private Hire Vehicles aged over six years old and any Hackney Carriage Vehicles aged over 10 years old. Vehicles emissions tests must be satisfied during the MOT for a license to be granted and the licence for such applications is limited to 6 months. The Air Quality (Taxis and Private Hire Vehicles Database, England and Wales) Regulations 2019 were introduced on 1 May 2019, which requires licensing authorities to regularly send information on licensed taxis and private hire vehicles to a central portal.

Anti-idling legislation has been adopted in Wirral, with enforcement focussed around evidence-based hotspots, including roads around schools, taxi ranks and bus stations. Through this, the highways enforcement team have been approaching drivers with leaflets to educate drivers on their role in reducing the impact of idling in our communities. This change will help to reduce Nitrogen dioxide (NO₂) concentrations at sites across the Borough. In connection with this legislation, the Environmental Health team is leading an educational campaign to raise awareness of the adverse impacts of idling on air quality. These campaigns include; asking primary schools to create banners on the topic of clean air and anti-idling, installing air quality

monitors at 7 primary schools, and attending various local events to promote the council clean air and climate strategies.

Sustainable Transportation for Employees

Wirral Council aims to improve air quality and staff wellbeing through enabling sustainable transport among employees. Through the pandemic the council has moved to home working which reduced staff commuting to work and travelling to meetings. The council is currently operating on a hybrid working model. As part of the redevelopment of Birkenhead and the opening of new council offices, a review of how staff will be able to travel to work will be undertaken, including how to encourage staff to walk and cycle to work or use public transport as part or all of their journey.

Public Transportation

The two main bus operators within the borough Arriva and Stagecoach have been improving their fleet to higher Euro engine standards which have lower emissions. Arriva have 44 hybrid buses in operation and 18 buses retrofitted with Euro 6 standard engines. Stagecoach has 7 new buses with Euro 6 engines and 6 which have been retrofitted with Euro 6. A flat fare of £2 for a single journey has been introduced on buses across the city region.

Free park-and-ride schemes are operational at 13 train stations in the borough, in addition to Seacombe Ferry Terminal. There is also sheltered and secure cycle parking at all but 3 stations within the borough. Merseytravel and Merseyrail promote public transportation across the region through targeted campaigns and their website. The LCR received £460 million in December 2016 for public rail improvements, which is being used to upgrade the 40-year-old train fleet although there have been delays to this programme of work due to the pandemic. This upgrade is accompanied by a public campaign to promote the improvements to the rail network. Similarly, bus providers in the LCR have collaborated to improve network provision, affordability, and investment, and to promote bus travel in the region.

Active transportation

Wirral Council is developing the walking and cycling infrastructure within the borough, with a particular focus in line with the draft local plan and the proposals to bring forth developments within brownfield development sites, creating a sustainable left bank within the city region. An active travel strategy is being developed along with investment to implement walking and cycling routes that are compliant with the government's latest guidance on active travel routes, LTN 1/20. This includes new walking and cycling routes around the docks between Birkenhead and Wallasey to support the Wirral Waters development, along with the development of a strategic route which links New Brighton and Birkenhead which is being developed in conjunction with the Combined Authority.

The Road Safety Team have a number of key projects to promote safe active and sustainable travel:

- The School Streets initiative aims to create safer and more pleasant environment for everyone around the school by encouraging walking, cycling and scooting by preventing vehicles from entering specific roads around the vicinity of the school. There will be a total of 6 School Street pilots in Wirral before the end of 2022.
- An Active Travel Officer has been employed utilising external grant funding provided via the Liverpool City Region to work with schools delivering the School Street initiative and Modeshift. 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. 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.

- Working in partnership with Sustrans to deliver the By Ours, a community-based project in Bebington to make the streets safer healthier and more attractive.
- Twenty four Wirral schools are currently involved in the Living Streets WOW Walk to School project, which seeks to promote active transport among school children.
- Cycle Training is offered to all Wirral Schools by the Bikeability provider selected by the Liverpool City Region. This promotes safe active travel for pupils on the journey to and from school. During 2021/22 further funding enabled a pilot project to be trialled in Wirral to further benefit secondary school pupils, this is the first time the project had been trialled outside of London.
- Visibility campaign has been designed to encourage road users to keep themselves and others safer. This supports the road safety activities we are delivering and the increase in safe sustainable / active travel.
- 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.
- The School Crossing Patrol Service enables families to walk, cycle and scoot to and from school
- Mind Your Business initiative has been working with local employers to promote eco driving.
- Wirral Council is looking to introduce more 20mph speed limits to improve air quality and reduce traffic speeds so that people can feel safer on the road. To do this, the borough has been split into different zones, and over the next four years, we will be asking residents for their thoughts on the schemes, before they are introduced. Between the start of October and end of November 2022, we will be consulting on the first 15 zones. More information about these zones and their consultation periods can be found below, and maps of the zone areas can be found in the documents tab of this page. All adopted roads within the red line boundaries on the maps are to be included within the scheme proposals, except where labelled: <https://haveyoursay.wirral.gov.uk/20mph-speed-limit-scheme>
- Merseyside Road Safety Partnership have produced a new Liverpool City Region Road Safety Strategy which was launched in October 2022. A Wirral Road Safety plan is to be developed to compliment the regional strategy and set out local delivery plans.
- [Eco school](#) programme in partnership with living streets, air quality team and lung charities to reduce car emissions around schools and encourage active travel.

Combined Authority Transport Plan Programme 2022/23

The proposed works set out in the City Region Sustainable Transport Settlement (CRSTS) Combined Authority Transport Plan programme 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. This will help to support better air quality across the borough and also 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.

Wirral Environment and Climate Emergency Policy and Action plan

In recognition of the increasing threat posed by climate change, Wirral Council declared an Environment and Climate Emergency through an all-party resolution in July 2019. In March 2021 the Environment, Climate Emergency and Transport Committee approved the Council's Environment and Climate Emergency Policy. The policy committed the Council to the

establishment of the Environment & Climate Emergency Action Plan (ECEAP) and the ambitious but achievable target of the Council and its entity being 'net carbon neutral' by 2030 – a 10-year journey. The commitment to action aims to:

- Cut climate damaging pollution locally in line with global targets, whilst developing resilience to more extreme weather patterns and rising sea levels that impact Wirral.
- Protect and enhance biodiversity.

The ECEAP (to be published) was developed in 2020 and is designed to drive fundamental change to the way the Council operates, makes decisions, and provides services. The plan contains a significant number of actions to transform the Council. Furthermore, the ECEAP is the Council's locally determined contribution to the wider Wirral Cool2 strategy, which sets a target for Wirral as a whole, to be carbon neutral by 2041.

Climate change and air pollution are closely linked, and strategies to mitigate the impacts of climate change has co-benefits of reducing air pollution and improving public health. The ECEAP prioritises the use of active transportation and renewable fuels, and increased community partnerships, engagement and education. Current ECEAP actions that will benefit air pollution include an on-street residential e-vehicle charging pilot, decarbonising buildings, establishing a green fleet strategy and electric vehicle charging infrastructure strategy.

What are the challenges?

Key gaps in knowledge and services

It is difficult to establish the effect of all the combined work across departments on reducing vehicle usage across the borough. Changes in working pattern over the period of the pandemic and now due to increasing hybrid working will have impacted on road usage. Furthermore, changes seen during the pandemic on activity levels may impact on exposure to air pollution.

We have limited data on how children travel to school across the borough. Currently seven schools submit data on how people travel to and from school as part of the Modeshift STARS accreditation programme (<https://modeshiftstars.org/about/>) which encourages active travel. We are aiming to recruit more schools to the programme which incorporates interventions to increase active travel. In addition this programme is planned to be rolled out to businesses in January 2023.

We have one official AURN and 5 indicator unofficial PM (non-reference) monitors. As a result, the full picture of particulate matter concentrations across Wirral has not been objectively measured. Whilst the DEFRA modelling did not identify exceedances, the implications of this will need to be considered further by the air quality group in the Air Quality Strategy.

What is coming on the horizon?

The Draft Local Plan 2021-2037 details the planned developments in housing and industry across the Wirral. Whilst an Air Quality Assessment found there would be no exceedances in air quality objectives with the planned development, this will need monitoring and collaboration between environmental health, public health, transportation, and sustainability departments to ensure that air quality remains a central consideration throughout the regeneration. A Health Impact Assessment (HIA) of the Local Plan, which is currently underway, will also provide recommendations relating to health impact. This may lead to actions that will need to be embedded into any Air Quality action plans.

DEFRA has directed all local authorities to provide an Air Quality Strategy from 2023. The Wirral Air Quality Steering Group will commence writing the strategy in late 2022 which will cover the next 5-10 years.

Plans to reduce the speed limit on all non-major residential roads across the borough to 20mph over the next 3-4 years could impact on air pollution and this will need monitoring.

What does the research suggest as further actions?

In 2019 Public Health England (PHE now known as Office for Health Improvements and Disparities; OHID) published a review of interventions recommended to improve air quality and health in local authorities. An internal audit of action being taken by Wirral Council to improve air quality against PHE's recommendations for local government to improve air quality and health ([PHE, 2019](#)) was conducted in September 2019 to identify key areas for improvement.

The audit identified the following recommendations:

1. Air pollutants (specifically NO₂ and PM_{2.5}) continue to be strategically monitored across Wirral to identify long term trends and areas for action locally.
2. Continue to annually review and update the Outdoor Air Quality Joint Strategic Needs Assessment.
3. Wirral Council maintains its current commitment to air quality, evidenced by the absence of Air Quality Management Areas, and considers extending membership of the Wirral Air Quality Group to include health partners and other anchor organisations.
4. NHS partners use their Sustainable Development Management Plans to deliver on the air quality goals in the NHS Long Term Plan and share how they are supporting patients and staff to reduce the health impacts of air pollution.
5. Prioritisation of air quality activities is based on the hierarchy of interventions (prioritising prevention of emissions over reducing/avoiding exposure).
6. Air quality initiatives continue to employ a focus on vulnerable populations and foster collaborations with internal/external stakeholders and the wider community.
7. Embed actions related to air quality emerging from the Health Impact Assessment of the Wirral Council Local Plan.
8. Local air quality interventions are formally evaluated to identify/share good practice.
9. The Wirral Air Quality Group drafts a dedicated local air quality plan to clearly and comprehensively define local air quality commitments, priorities and monitoring/evaluation over the next five to ten years, aligned to LCR and national air quality strategies.
10. Key strategic plans for the borough embed air quality considerations across all actions, prioritising initiatives that deliver a net health gain within the local population.

The Health and Wellbeing Board supported these recommendations and Public Health England have commended Wirral's approach.

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