



Knowsley Council



# Knowsley Air Quality Strategy

2024-2027





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## Foreword

Poor air quality is “the largest environmental risk to public health in the UK”. As well as human health, air pollution has implications for the natural environment and for the economy. Action to manage and improve air quality has been driven by international agreements, EU, and UK legislation.

Our vision for Knowsley is for the borough to have healthy air and an improved quality of life for all those living in the borough.

The 2008 Ambient Air Quality Directive set legally binding limits for major pollutants that impact public health, such as particulate matter (PM<sub>10</sub> and PM<sub>2.5</sub>) and nitrogen dioxide (NO<sub>2</sub>). Along with this the Air Quality Standards Regulations 2010, seek to control human exposure to pollutants, with the ‘Air quality strategy: framework for local authority,’ (April 2023) sets out guidance for Local Authorities.

Knowsley has already made several commitments to improve air quality through the reduction of the borough’s emissions and policies have been developed to support this through Knowsley’s Net Zero Delivery Plan 2022-2025 and Climate Emergency Action Plan.

Commitments to reduce air pollution can have a big effect on health. We know that poor air quality both indoors and outdoors can impact negatively on our residents and visitors to the borough. Through education, engagement, and promotion around positive changes to the way we live and work to support the reduction of pollution we can in turn work towards improving health and life expectancy.



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## Introduction

Over the last 50 years air quality has significantly improved nationally, driven by concerted action specifically on energy use and transport.

Poor air quality is still the largest environmental risk to public health in the UK. It shortens lives and reduces quality of life, particularly amongst the most vulnerable, the young and old, and those living with health conditions.

Climate change and air pollutants share common sources. Greenhouse gases are most active high up in the atmosphere, whereas the most important factor for air quality is the concentration of pollutants nearer to the earth's surface. Electricity generation and road transport are two of the most significant sources of both air quality and climate pollutants.

Through the introduction of an Air Quality Strategy (AQS) Knowsley will be able to inform policy and direction across a wide

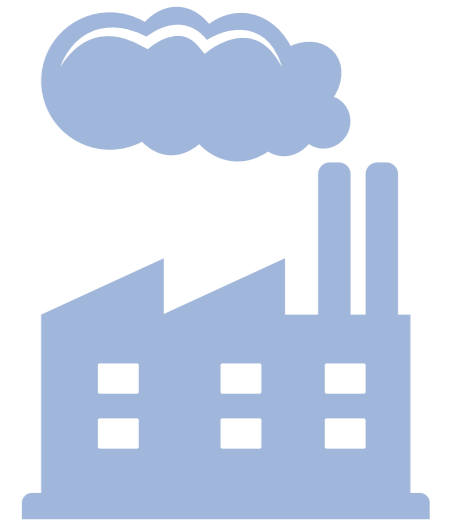
range of council and borough services to integrate the consideration of air quality into the council decision making process.

With the Climate Emergency Plan already in place the strategy will complement the continued reduction of carbon emissions generated from the Council's estates and services and will promote and support both residents and businesses in our borough to work to improve air quality in Knowsley.

The aim of this Air Quality Strategy is firstly to set out a clear set of priorities for air quality followed by a clear strategic framework to help deliver local air quality improvements and objectives within Knowsley. It can support the achievement of national air quality objectives taking into consideration the range of local government and regional frameworks.

It is therefore important for Knowsley to reduce, where possible, public exposure

to certain pollutants, even where the levels are below the air quality objectives. Establishing this Air Quality Strategy along with a strategic framework which drives air quality considerations to the heart of Council policies, procedures, and decisions, will ensure that Knowsley is well placed to maintain good air quality and secure future improvements across the borough.





# Air Quality Overview

## What is air quality?

A term used to describe how polluted the level of air is that we breathe. Clean air is a requirement of a healthy environment. Air can be polluted in many ways and as a result be hazardous to people, having major issues on health. It can be a major public health risk. Air quality can differ depending on areas and the types of emissions being discharged in that locality.

## What are the sources?

**Outdoor air** can be polluted via a number of sources:



**Stationary Sources**  
Industry, Oil Refineries,  
Factories



**Area Sources**  
Agricultural, Domestic  
Wood Burning



**Natural Sources**  
Windblown dust,  
Wild fires



**Mobile Sources**  
Transport both domestic  
and business

## Indoor air

Over 80-90% of most people's day is spent indoors and 60% of that time at home. Problems can arise from:



**Biological Sources**  
Bacteria or mould



**Consumer Products**  
Aerosols or cleaning  
products



**Gas Powered  
Appliances**  
Such as a boiler



**Wood Burning  
Appliances**  
Such as log burners



**Ventilation**  
Damp or poorly ventilated  
rooms



# What are the pollutants and associated health effects

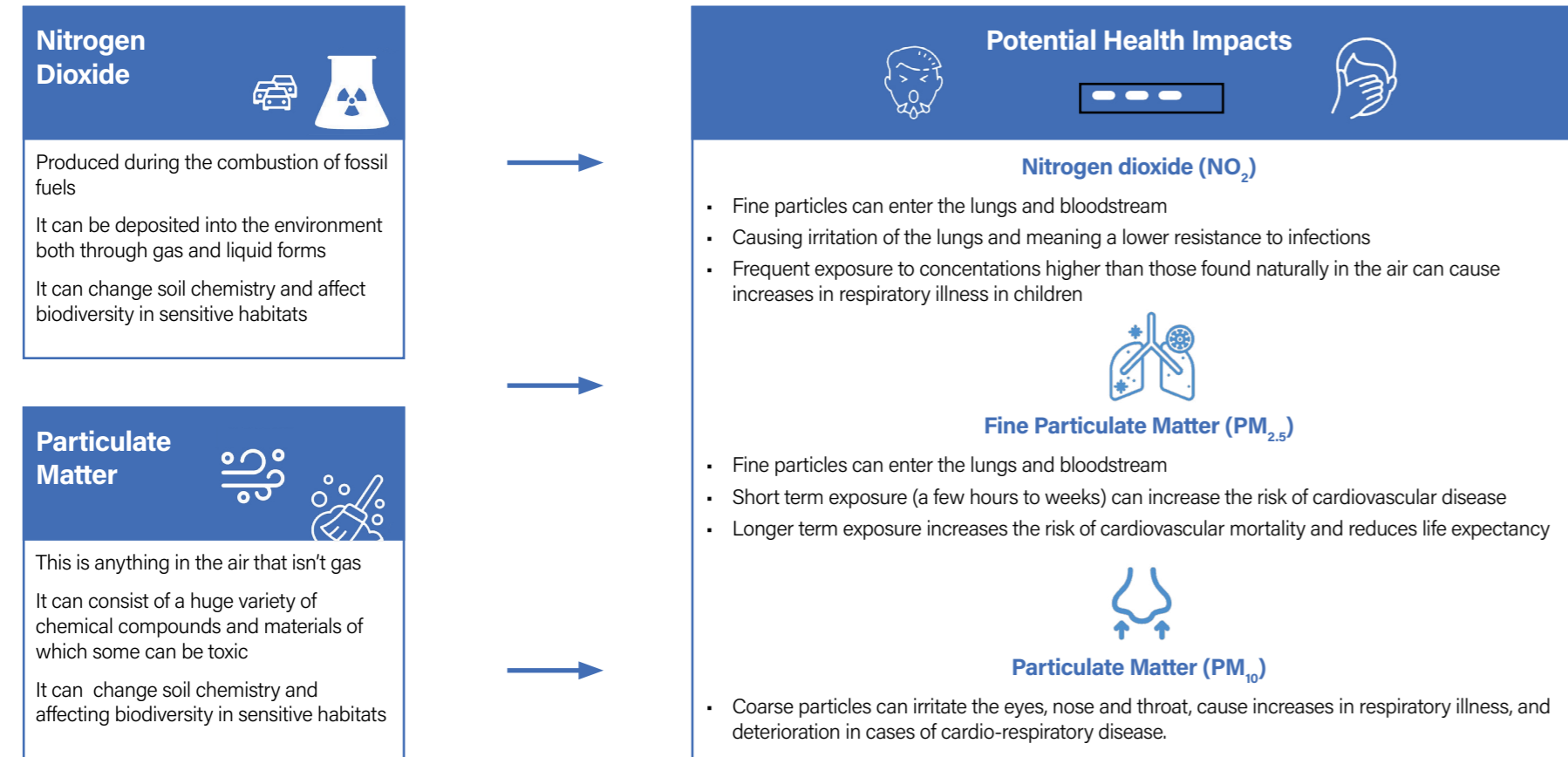


Figure 1 outlines the two major types of emissions that are detrimental to humans and how they enter the human body

# What are the pollutants and associated health effects

The pollutants of concern in relation to emissions are Nitrogen Dioxide (NO<sub>2</sub>) and Particulate Matter (PM), largely associated with road traffic, fuel combustion, industrial processes, and the construction industry. There are increasing concerns nationally over fine, and ultra-fine particles.

Air pollution can cause and worsen health effects in all individuals, but some population groups are more at risk than others, including children, the elderly, individuals with existing heart and respiratory diseases, pregnant women, low-income communities; and communities in areas of higher pollution, such as those close to busy roads.

Long-term exposure to air pollution both outdoor and indoor can cause chronic conditions such as cardiovascular (heart disease and stroke) and respiratory diseases as well as lung cancer, leading to reduced life expectancy.

Indoor air can be just as heavily polluted as the air outside and for those who are housebound or spend long periods of time indoors this can certainly contribute to a number of health conditions.

Short-term increases in levels of air pollution can also cause a range of health impacts, including effects on lung function, worsening of asthma, increases in respiratory and cardiovascular hospital admissions and deaths.



# What are the pollutants and associated health effects

Given that Knowsley is the second most deprived local authority area in England, according to the 2019 Indices of Multiple Deprivation, and health inequalities experienced, the impacts of air quality will be significant. Knowsley experiences high levels of health inequality with the more deprived areas seeing poorer health outcomes than England and Northwest averages.

The statistics on the opposite page give an overview of health impacts and some information relating to Knowsley.

It is important to note that poor health can also be attributed to many other environmental and situational causes.

The rate of air pollution around urban areas can also disincentivise people from leading more active lifestyles and worsen existing respiratory conditions thereby having a detrimental impact on overall health and wellbeing. According to GP records, in 2021/22 Knowsley's rate of Chronic Obstructive Pulmonary Disorder, a condition that causes breathing difficulties (COPD) was almost double England's rate.

It is estimated that between 2017 and 2025 the total cost to the NHS and social care system of air pollutants (fine particulate matter and nitrogen dioxide), for which there is more robust evidence for an association, will be £1.6 billion (OHID, 2022).



# What are the pollutants and associated health effects



## Pregnancy

Low birth weight



## Children

Asthma  
Slower development of lung function  
Development problems  
More wheezing and coughs  
Start of atherosclerosis



## Adults

Asthma  
Coronary heart disease  
Stroke  
Lung cancer  
Chronic obstructive pulmonary disease (such as chronic bronchitis)  
Diabetes



## Elderly

Asthma  
Accelerated decline lung function  
Lung cancer  
Diabetes  
Dementia  
Heart attack, heart failure and strokes



In 2021 Knowsley had the 3rd highest Local Authority rate in England for respiratory disease premature deaths



In 2021 Knowsley had the 6th highest Local Authority rate in England for cancer premature deaths



In 2021 Knowsley had the 11th highest Local Authority rate in England for lung cancer premature deaths



In 2021 Knowsley had the 13th highest Local Authority rate in England for cardiovascular premature deaths. This includes heart diseases and strokes



Figure 2 adapted from the Department for Health to outline how poor air can affect or contribute to poor health



# Air Quality National and Local Policy

It is important for us when developing our strategy and the associated priorities that we are aligned with national, regional, local strategies and directives that relate to the improvement of air quality.

By ensuring we align our actions locally with national air quality targets we ensure air pollution is being tackled through a joined-up approach. We have outlined the key policies and strategies in the diagram to the right, that we believe are most relevant when undertaking the reduction of air pollution and emissions.

Air Quality falls under all aspects of how the UK works on a daily basis and so the Government has been working to make sure that air quality is put high on the agenda as it affects every aspect of our daily lives.

Most of the policies, regionally and locally, are under review. They are expected to change under the **Environmental Principles Duty** to ensure policy making has the Environmental Improvement Plans targets front and centre.

The government is looking at wider issues that affect indoor air quality, partly through the current **Renters Reform Bill** which will put time limits on the private sector to make improvements to properties experiencing damp and mould. Social Housing issues are also being addressed through the **Social Housing Regulations Act 2023** and a proposed **Tobacco and Vapes Bill**.

Knowsley's Council plan has a clear priority setting out Knowsley's desire to meet Net Zero by 2040. There are a number of service strategies that underpin this drive. The Air Quality Strategy works towards fulfilling part of the council priority and is one of many we are working on ahead of 2040.

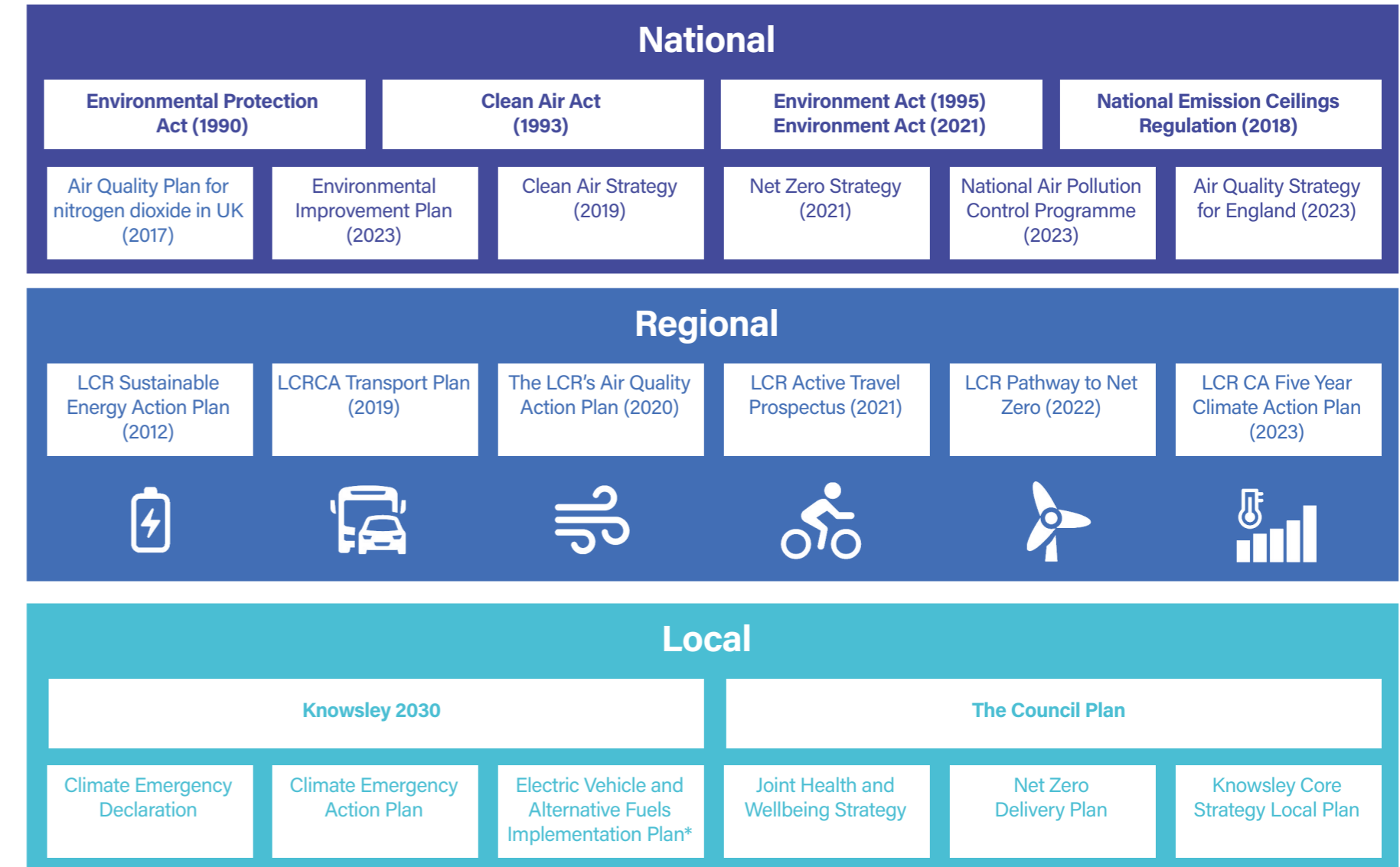


Figure 3 Outline of both local and national related policy

\* Currently in development



# Air Quality in Knowsley

In Knowsley it was identified that most emissions are from road traffic vehicles and from industrial sources.

The borough has industrial bases such as Knowsley Business Park, and the Huyton, Kings and Prescot Business Parks situated in the centre of the borough and other manufacturing businesses.

Neighbouring authorities also house large industries and industrial areas that can have an impact on the air quality in Knowsley.

The Shell oil refinery/Petro-chemical complex in Ellesmere Port lies to the southwest of Knowsley borough, Simonswood Industrial estate is situated on our Lancashire border as well as major glass manufacturing sites situated in St Helens.

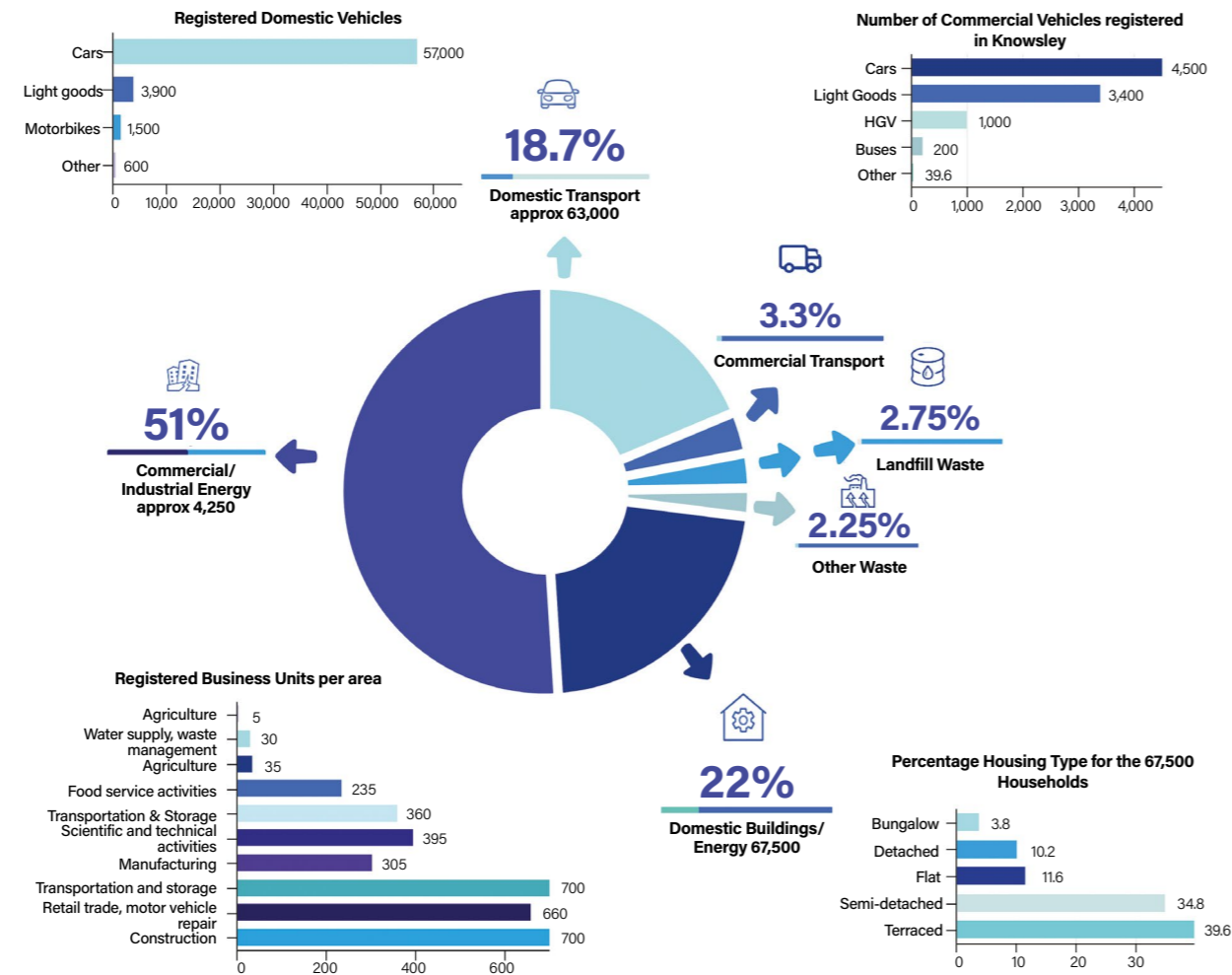
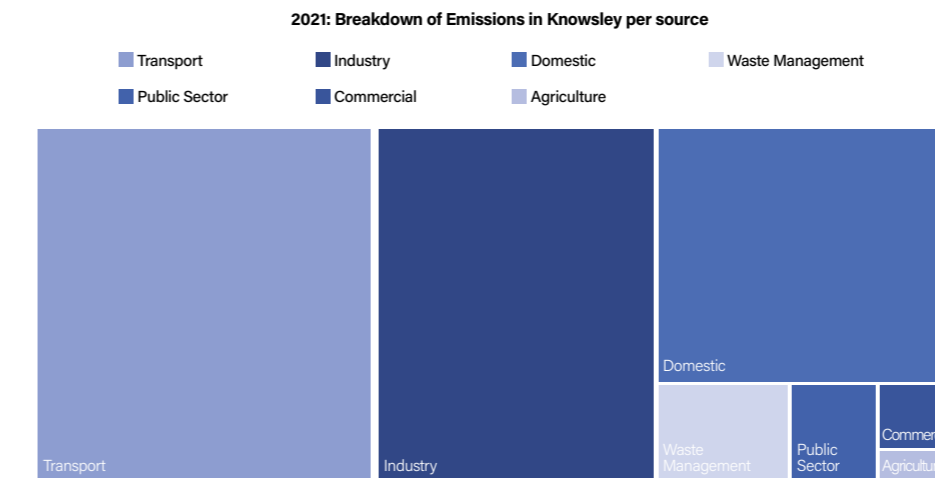
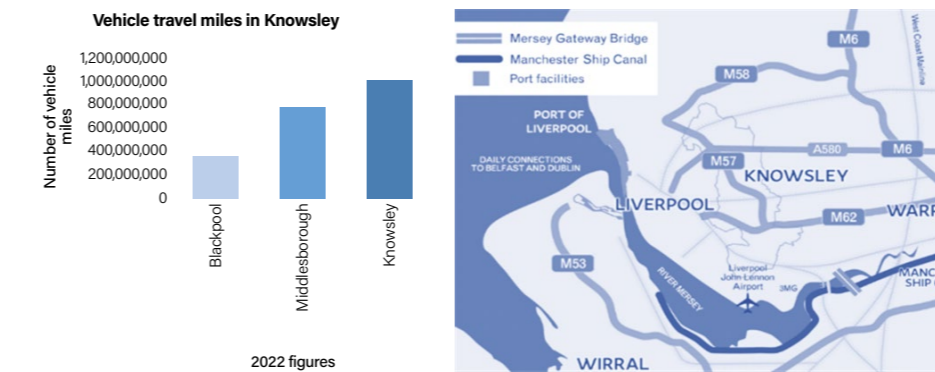


Figure 4 Figures taken from ONS and Department for Transport

# Air Quality in Knowsley



The M57 is the 'backbone' of the Borough, running Northwest to Southeast. The M62 and A580 (East Lancashire Road) link with the M57 and cut through the Borough East to West.

The A5300 acts as the southerly extension of the M57. The motorway and main A-roads are connected via a network of smaller roads, which link towns and villages in the Borough. Knowsley also has on its border one of the two busiest airports in the Northwest which has over the last 12 months increased the number of flights it services greatly.

Considering the nature of travel links within Knowsley, the borough has the lowest number of both domestic (61,290) and commercial vehicles (9,139) when compared to other Liverpool City Region authorities.

In 2022, Knowsley had higher numbers of vehicles travelling through the borough than local authorities of a similar population size such as Blackpool and Middlesbrough.

When measuring the levels of nitrogen dioxide in the borough 37% of emissions came from transport alone this is higher than the national figure which is 28%. As the diagram to the left outlines the three biggest contributors to emissions for Knowsley are Transport, Industry, and domestic energy.





# Measuring Air Quality in Knowsley

Emissions are a measure of how much pollution is released into the air, and concentrations are the levels at which pollution is present in the air. The government has applied concentration limits nationally and locally and as such the local authority monitor air quality and have a duty to contribute to air quality improvements where relevant.

Through the DEFRA approved Local Air Quality Management (LAQM) system Knowsley are required to assess air quality in the borough and to designate management areas if improvements are necessary, with action plans published to detail timeframes of reduction measures. All levels of local government are expected to commit to taking the actions necessary to ensure that local air quality objectives are secured.

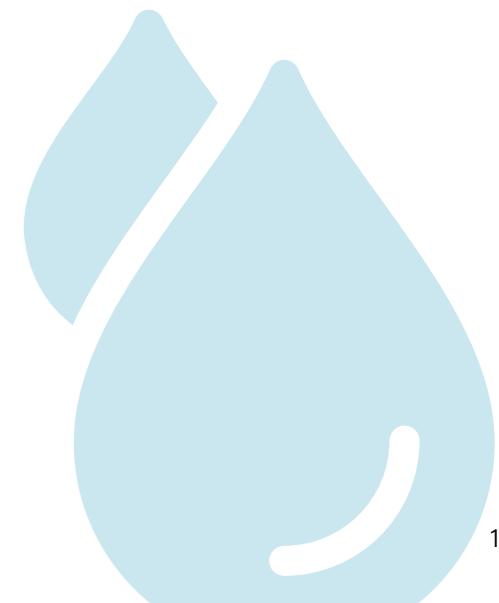
Knowsley is required to submit an Annual Status Report (ASR) each year to Department for Environment and Rural

Affairs (DEFRA) to determine the status of the local air quality within the borough. We monitor the air quality using passive diffusion tubes. There are currently 35 monitoring locations within Kirkby, Huyton, Prescot and Halewood. Also, as part of the Liverpool City Region Combined Authority air quality monitoring exercise, Knowsley have installed five EarthSense Zephyr monitors close to traffic light junctions, four within Kirkby and one in Huyton; and a DEFRA approved Particulate Matter (PM) background monitoring station should be established in 2024 within Page Moss.

In 2022, the measured Nitrogen Dioxide (NO<sub>2</sub>) concentrations across Knowsley predominantly saw decreases throughout the monitoring sites and have demonstrated long term compliance with DEFRA's Air Quality Strategy (AQS) objectives, when the national bias adjustment factor was applied. Five monitoring sites within Kirkby, two within Huyton and one within Halewood

had concentrations of nitrogen dioxide within 10% of the national objective (40µg/m<sup>3</sup>). At present, Knowsley do not have any Air Quality Management Areas (AQMA's). Knowsley will continue to monitor these areas and continue to establish measures to improve air quality for the borough.

For full details on the current air quality monitoring and assessment of the air quality in the borough the annual Air Quality Annual Status Reports (ARS) can be read here: [Air quality | Knowsley Council](#)







## Consulting on Air Quality for Knowsley - Working with our residents and businesses

'Our vision for Knowsley is for the borough to have healthy air and an improved quality of life for all those living in the borough'

To ensure we got our vision and priorities right we have consulted with our residents, businesses, industry, and visitors to share information about air quality. We wanted to hear their opinions regarding air quality and the ways in which we can work with residents, business, and industry to make improvements across the borough.

We developed a consultation survey that was circulated and discussed in public hubs, via speaking to residents on community action days, through contacting our partners and businesses and wider through advertisement on our social media sites.

Along with information about air quality we consulted on Knowsley's vision and suggested priorities.

From the consultation we discovered that:

- 75% of our residents in Knowsley believe Air Quality is important
- The majority of consultees, agreed with our vision for Knowsley
- Over 70% of our residents and business are prepared to upgrade their home insulation to reduce energy use and update the boilers in their properties to cut emissions

- Those consulted felt improvements in public transport and its frequency would encourage people to use their own cars less and public transport more
- Those who responded felt that planting more broad-leaved trees would not only help to capture carbon but to make the areas they live and work more visually appealing



# The Priorities for Knowsley



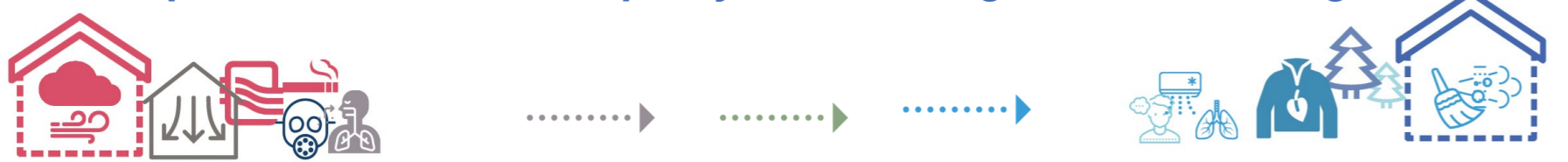
**1. Supporting the reduction of domestic, commercial and industrial emissions**



**2. Supporting the reduction of emissions from transport**



**3. Raise public awareness of air quality and encourage behaviour changes**



**4. Supporting improvements to indoor air quality**

Figure 5 The four priorities chosen to work towards improving air quality

# The Priorities for Knowsley

Using the information that we gathered from the consultation work and using guidance from the government we have developed four priorities that we believe will support improving air quality in Knowsley.

Our key priorities are presented on the opposite page, and as a part of each priority we have identified several actions, that Knowsley currently do and plan to do, that will help support the reduction in local air pollution.

The actions identified, will ensure Knowsley Council will work across all sectors identified to ensure we deliver as much improvement as possible this includes both the Council's activities and other's emissions that are polluting our air.





## PRIORITY 1 - Supporting the reduction of domestic, commercial and industrial emissions

### Why is it important?

Air quality affects everyone and is a public health issue. Emissions that cause air pollution can come from a range of sources including large industrial sites to places we work, to the homes we live in. Emissions come from the way we heat our homes, the way new homes are built, the heat and energy used by businesses and through larger industrial processes that both use energy and generate heat. This amounts to 73% of emissions released into the atmosphere yearly.

By making people less healthy, poor air quality harms productivity and can increase the cost to society through medical and social care along with impacting on the biodiversity of our environment.

Working towards lowering those emissions needs to be tackled in a number of ways depending on how and where those emissions are created.

### What have we done already?

- Inspections on industrial processes, that release substances to the atmosphere are completed as per regulations, to ensure they are compliant with the regulatory permit conditions.
- Air quality is monitored passively is monitored using diffusion tubes across the borough. An annual report (ASR) is completed yearly detailing the status of air quality within the borough
- Mitigation secured on new developments such as travel plans, public transport infrastructure and EV charging points to reduce the air quality impacts on new developments

### What we plan to do?

- Ensure that new developments provide EV infrastructure as required by Building Regulations and adopted Planning documents
- Review the appropriateness of existing smoke control areas, with the intention of extending them borough wide
- Raise awareness of health impacts from burning for use as a heating source and for removal of waste on allotments and industrial estates
- Continue to review current environmental permits associated with the release of substances to atmosphere in industrial premises in line with Government standards, take appropriate action on unauthorised processes when identified
- Assisting with the development of workplace travel plans for both business and industry and further develop this support
- Continue to take account of air quality when deciding planning applications and seek appropriate mitigation where necessary
- Investigate the possibility of installing automatic air quality monitoring stations to support current measures to monitor air quality within the borough and to help inform measures to reduce exposure to pollutants





## PRIORITY 2 - Raise public awareness of air quality and encourage behaviour change

### Why is it important?

To support the journey, it is important that everyone understands what air pollution is, how it is created and the changes that need to be made in order to reduce air pollution and improve the air around them. Changing behaviours is key to improving air quality, breaking habits to make changes that will make the biggest impact.

Removing polluting fossil fuels to improve air quality will require the transformation of domestic homes, businesses, and every sector of the global economy. It means no longer burning fossil fuels for power or heating; it means new ways of making concrete, cement, steel; it means the end of the petrol and diesel engines that power transport.

A number of long terms plans have been set out to support change, such as funding towards energy upgrades for consumers, moves to alternative fuels for industry and the decarbonisation of transport.

Working to support that change is important to Knowsley and it can only be done with support from our community.

### What have we done already?

- Supported the establishment of the Liverpool City Region Air Quality Website, to improve information provided to the general public: [www.liverpoolcityregion-ca.gov.uk/air-quality](http://www.liverpoolcityregion-ca.gov.uk/air-quality)
- Conducted awareness raising events - National Clean Air Day
- Supported Anti-Idling campaigns to stop emissions in public spaces nears schools, shopping centres and other destination areas

### What we plan to do?

- Identify best practice for communication methods. Improving green spaces and biodiversity
- Develop a school engagement programme to encourage active travel and raise awareness of poor air quality
- Identify areas of funding to help enable change
- Identify best practice for communication methods to wider areas of the community
- Develop a co-ordinated communications strategy and delivery plan in line with national strategy directed at Knowsley air quality
- Engaging with and promoting national air quality campaigns
- Develop a digital platform for air quality information to be used with partners, residents, businesses and industry to show the effectiveness of interventions and encourage behaviour change
- Support the development and improvement of green infrastructure through programmes that monitor air pollution and could inform the public of a better journey to take to avoid areas of poor air quality





## PRIORITY 3 - Supporting the reduction of emissions from transport

### Why is it important?

Road transport, both private and commercial are key emitters of air pollution and emissions and although today's new cars are more efficient than those bought in 1990, transport greenhouse emissions have fallen just 2% since 1990 meaning transport is now the largest sector for UK greenhouse gas emissions (27%), of which road transport accounts for over 90%.

In 2022 there were over 70,000 vehicles registered within the Knowsley borough. This figure does not include those vehicles that undertake daily travel through the borough visiting, driving to work, or transporting goods.

Road transport is fundamental to the way people, goods and services move across the UK. More than 60% of UK journeys are by car. Because of this it is important for the council to support our residents, business, and industry to make the move to zero emission vehicles along with supporting the private sector and government to develop the infrastructure required to support the move to zero emission vehicles.

### What have we done already?

- Introduced active travel measures (Constructed cycle ways/ walkways in the borough), to promote alternative travel modes to reduce traffic volumes, leading to reduced emissions
- Improved the efficiency of road junctions and signals, to reduce idling traffic and congestion
- Road junction improvements at several locations across the borough along with other supporting highways schemes to lessen emissions and make active travel easier

### What we plan to do?

- Knowsley have more direct control over Knowsley's own fleet and vehicles that service our buildings. By leading by example and requiring partners and contractors to do the same, Knowsley can help drive wider change towards more sustainable transport living
- Through the development of a Knowsley council travel plan, the plan will cover the use of public transport, car share initiatives and other ways to reduce greenhouse gases produced from transport
- Promote active travel and the use of public transport to support the Liverpool City Region road safety and active travel plan
- Investigate opportunities for reducing emissions from non-road mobile machinery (NRMM) used in construction and agriculture
- Develop Knowsley Council's Green Fleet and an Electric Vehicle & Alternative Fuels Implementation Plan
- Work with partners to explore opportunities for funding to support electric charging infrastructure across the borough
- Tackle vehicle idling using anti-idling campaigns and enforcement, where appropriate





## PRIORITY 4 - Supporting improvements to indoor air quality

### Why is it important?

Improving indoor air quality can have significant benefits for health and wellbeing for the people of Knowsley. Factors that influence indoor air quality include use of solid fuel, the use of certain products and materials, tobacco smoke, cooking practices, and outdoor air pollution.

The air inside our homes and indoor spaces can be 5 times more polluted than the air outdoors and 81% of people are at risk of respiratory or dermatological conditions due to poor indoor air.

Raising awareness of how residents and industries can improve indoor air quality and ventilation is key. Keeping rooms well aerated, using chemical-free / allergy-free products, using solid or liquid cleaning products instead of sprays, preventing condensation, smoking outdoors, using gas or electric heating instead of solid fuels, and vacuuming regularly.

### What have we done already?

- Offered guidance relating to open fires and wood burning stoves for homes outlining steps to be taken to reduce the impacts on health
- Undertaken substantial education and promotion on ventilation within buildings. This was heavily ramped up through the height of Covid to ensure air quality indoors was safe. We included advice for homes, businesses, education settings, and public places

### What we plan to do?

- Produce a communications strategy to raise awareness of indoor air pollutants and what measures can be taken to improve that air
- Ensure the advice provision for home energy efficiency works but is not at the detriment of a building's ventilation
- Seek collaboration opportunities with partners and schools to promote indoor air quality actions
- Identify vulnerable populations most exposed to indoor air pollution and engage with them to work towards improved air through the 'Stop Spores, Open Doors, Don't Hesitate to Ventilate' campaign
- Raise awareness of the link between adverse weather and its contribution to indoor air quality
- Working with public/private housing providers to ensure their housing stock has good ventilation and that government guidance regarding good air quality is circulated to all tenants
- Signpost those experiencing issues with damp or mould to the right agencies delivering extensive information advice and guidance through our Knowsley Council webpage and customer contact centre
- Using our public health campaigns to encourage those within the borough to make healthy lifestyle choices





## Next Steps

### **The development of an Air Quality Implementation plan to work towards priorities set out in this strategy.**

The Plan will encompass sets of actions that will be assigned to each priority. Our services will work collectively and collaboratively to support our aim to improve air quality.

### **Continuing to work with our residents, businesses and industry on the reduction of emissions.**

Building on relationships we have formed through our current work across the community we will to educate, signpost and support on government schemes to make the switches needed to lower emissions.

### **Continuing to monitor air pollution and emissions levels across the borough.**

We will continue to adhere to government guidelines assessing the air quality within the borough. We will work in partnership with the EA and DEFRA to establish the background concentrations of Particle Matter 2.5 (PM2.5) in line with new legislation and look to invest in new equipment to further assess the air quality within the borough.



