

Oxfordshire County Council

Air Quality Strategy

Route Map 2023-2026

June 2023



OXFORDSHIRE
COUNTY COUNCIL

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1 Introduction

This route map has been published in support of Oxfordshire County Council's Air Quality Strategy. This is the first supporting route map and covers the period 2023-2026. This route map outlines the specific internal actions we will be taking in the next three years to work towards delivery of the overarching vision and objectives for air quality. The vision and objectives identified in the strategy are included below.

Vision

“Our vision is to accelerate the improvement in Oxfordshire’s air quality to reduce the health and environmental impacts of dirty air, so ensuring that all residents can breathe safely.”

Objectives

- **Work in partnership to support the work to improve air quality undertaken by the district and city councils. We will work with air quality partners to:**
 - Inform an evidence-based approach to air quality actions by increasing our understanding of the state of air quality in Oxfordshire and the impact of measures to improve air quality.
 - Identify and prioritise action in locations which are particularly vulnerable to air pollution impacts.
 - Raise public awareness of air quality and indoor air pollution, the impacts on health and personal protection measures recommended in order to promote sustainable behaviour change.
- **Work with air quality partners to maintain a downward air pollution trajectory and develop population exposure targets. We will work with air quality partners to:**
 - Reduce annual mean PM_{2.5} concentration to 5 µg/m³ or less by 2030.
 - Reduce emissions of Nitrogen oxides (NO_x) by 73% by 2030 relative to 2005 levels.
 - Work towards air quality that meets the World Health Organisation (WHO) guidelines by 2030.
 - Conduct population exposure modelling and develop quantified local population exposure targets for PM_{2.5} and NO_x.
- **Deliver the Oxfordshire County Council Air Quality Strategy Route Map. We will work to:**
 - Support the ongoing delivery of work linked to air quality and increase consideration of air quality in decision making.
 - Provide a more coordinated approach to supporting action to improve air quality.
 - Work with partners to secure funding to deliver new projects on air quality.

Strategic approach

To make the vision and objectives achievable, the strategy outlines a strategic approach. This is a high-level approach that will help to guide future work on air quality in the county and the actions we will be taking. The approach that we will be taking to improve air quality is grouped into three areas:

- **Reduce – Reduce emissions of air pollution**
- **Extend – Extend distance from pollution sources**
- **Protect – Protect those most at risk**

Actions

The actions in the following chapters are what we will be doing in the short to medium term to deliver the strategy. The actions are all related to functions directly within Oxfordshire County Council's control. This is a first step to improving our work on air quality and to better define the county council's role. Moving forward, joint working and shared actions will be required with a range of stakeholders, particularly the district and city councils, to truly deliver our vision for air quality.

This route map is structured according to our strategic approach and identifies those actions that we will be taking to reduce, extend and protect. We have included partnership working and monitoring as separate sections due to their cross-cutting impact on all of our work.

For each action we have defined what success will look like, including who is responsible for an action and a proposed timeframe for completion. This will be used to report progress to the Oxfordshire Health Protection Forum.

Within the chapters, we have grouped the actions into six key areas that are either local drivers or enablers of air quality. We have grouped the actions in this way to reflect the diverse range of issues and work being conducted within the broader reduce, extend, protect framework. We have identified the work already underway and actions we will be taking in each section. The local drivers and enablers identified are:

- Transport
- Council emissions
- Behaviour change
- Planning
- Waste
- Domestic heating

We recognise that there are a number of actions in the strategy which are a mixture of existing work and new work. To help guide delivery, we have therefore identified five priority actions for the first year (2023-24).

2 Action summary table

Action	Action wording	Work status
Partnership working		
	Secure wider Oxfordshire County Council staff engagement with the Air Quality partnership group by Winter 2023 to actively support the development, updating and implementation of the district and city councils' air quality action plans and other appropriate projects (as per our legal responsibilities set out under the Environment Act 2021).	
	Engage with the local NHS system to assess the feasibility of conducting joint work about impacts, costs, health burden and solutions related to poor air quality.	
	Continue to support air quality research projects with academic partners and seek to secure funding for future projects, particularly in rural areas.	
	Provide an annual opportunity for those with an interest and responsibility for air quality to share with others the lessons learned from their respective projects and initiatives.	New
8	Develop and agree an Oxfordshire wide Air Quality Strategy by Spring 2026.	New

Action	Action wording	Work status
	<p>Deliver the actions identified in the Carbon Management Plan to reduce emissions from our buildings, highway assets, fleet, and staff business travel.</p> <p>Expand the use of zero tailpipe emission and hybrid vehicles within the Oxfordshire Fire and Rescue Service fleet.</p>	
	<p>Support delivery of the LTCP, ensuring consideration of air quality in new highway schemes and potential trade-offs with decarbonisation where relevant.</p>	
	<p>Work with bus operators to update and expand the Oxford bus low emission zone, deliver the Zero Emission Bus Regional Areas (ZEBRA) scheme and explore opportunities to build on this work and accelerate the transition to a zero-emission bus fleet across the county.</p>	Existing work
16	<p>Work with bus operators to introduce measures to reduce exposure to dangerous air pollution concentrations in bus stations.</p>	New
17	<p>Continue to support the development and delivery of rail improvements in Oxfordshire.</p>	Existing work
18	<p>Lobby for electrification of railways in Oxfordshire and measures to reduce exposure to dangerous air pollution concentrations in train stations.</p>	New

Action	Action wording	Work status
	<p>Identify whether the train operators have a policy on idling in stations, how much idling in stations there is of diesel trains and if operators have done an air quality assessment of the impacts.</p> <p>Deliver projects to encourage the uptake of zero tailpipe emission vehicles and work in association with our district and city councils to deliver the OEVIS.</p> <p>Deliver parking controls, traffic reduction schemes and congestion management measures to reduce private car use and improve local air quality.</p> <p>Undertake Network management as part of an integrated approach to promote traffic flow and reduce idling traffic particularly in locations where there are groups vulnerable to poor air quality.</p> <p>Utilise evidence to investigate the relationships between congestion, air quality and noise to identify what measures and innovative transport solutions could be introduced to minimise the impact of congestion on the environment and quality of life.</p>	
	Planning	
	Waste	
	Domestic heating	
	Support joint behaviour campaigns about domestic wood burning with the district and city councils and other air quality partners.	New
27	Investigate conducting targeted work about domestic wood burning for vulnerable residents with air quality partners.	New
28	Work in partnership and use an intelligence led approach to enforcement in relation to improving air quality.	Expansion of work

Action	Action wording	Work status
37	Continue to make the link between the benefits of carbon reduction and air pollution and raise awareness of carbon reduction interventions which may worsen air quality, including during development and delivery of PaZCO action plans.	Expansion of work
38	Use health and social care data to identify vulnerable communities that need to be prioritised.	New
	Planning	
39	Ensure air quality is included as a potential health impact when conducting HIAs on major transport schemes or plans and any adverse impacts on local air quality are effectively mitigated.	Existing work
	Domestic heating	
40	Continue work to provide energy efficiency advice and bid to retrofit programmes to support those in fuel poverty. Include reference to the benefits of improving indoor and outdoor air pollution as a result of a move away from fossil fuels.	Expansion of work

	Secure funding for new air quality monitoring projects and the utilisation of data and insights from existing research.	
	Work with our Air Quality Partners to understand current monitoring in Oxfordshire and develop a joined up, integrated approach to local air quality monitoring.	
	Work with air quality partners to carry out population exposure modelling and develop local population exposure targets for PM _{2.5} and NOx.	New

Priority actions

We recognise that there are a number of actions in the strategy which are a mixture of existing work and new work. To help guide delivery, we have therefore identified five priority actions for the next year (2023-24). The priority actions are all related to new work that we will seek to deliver in the next year. We have identified one priority action for each section and will review our priority actions annually. Our priority actions for the next year are shown in the table below.

Section	Priority Action	Action wording	Definition of success
		Secure wider Oxfordshire County Council staff engagement with the Air Quality partnership group by Winter 2023 to actively support the development, updating and implementation of the district and city councils' air quality action plans and other appropriate projects (as per our legal responsibilities set out under the Environment Act 2021).	
		Support joint behaviour campaigns about domestic wood burning with the district and city councils and other air quality partners.	
		Create an air quality communication plan, linking it with the work of the district and city councils and other air quality partners.	
		Work with our Air Quality Partners to understand current monitoring in Oxfordshire and develop a joined up, integrated approach to local air quality monitoring.	Create map of current monitors and share OCC data on Oxfordshire Air Quality website.

4 Partnership working

We have included partnership working as the first section as it is essential to delivering our objectives and supporting the work done by the district and city councils. Partnership working is central to meeting our responsibilities as an air quality partner¹ and helping the district and city councils to fulfil their statutory air quality responsibilities.

We champion partnership working because we recognise the value and benefits of cultivating good working relationships with a range of air quality partners such as our district and city councils, surrounding local authorities and statutory bodies such as the NHS. In terms of air quality, partnership working with a range of stakeholders will be essential to truly deliver better air quality for all.

District and city councils

The district and city councils have the responsibility to monitor air quality, produce and update action plans in Oxfordshire. The county council is a key air quality partner and contributor to the contents and updates of these plans. Partnership working is therefore essential to improve air quality in Oxfordshire.

We are currently jointly working on several projects including the development of an improved air quality website using funding from Defra. The website seeks to communicate more engagingly with the public, particularly those at risk of poor health.

Public Health officers currently attend monthly meetings with district air quality officers to support a health focus on air quality work and transport officers provide input to district council air quality action plans due to the strong links between transport and air pollution in the county.

However, we recognise that there is scope to improve this partnership working, particularly around the development and update of air quality action plans and other appropriate projects.

Action 1 – Secure wider Oxfordshire County Council staff engagement with the Air Quality partnership group by Winter 2023 to actively support the development, updating and implementation of the district and city councils’ air quality action plans and other appropriate projects (as per our legal responsibilities set out under the Environment Act 2021).

¹ As set out in the Environment Act 2021

NHS

The county council's Public Health team has operational links with NHS primary care services, the two NHS Trusts and the Integrated Care System. We also have connections with the NHS through the Health and Wellbeing Board and associated strategy.

Through these connections with the NHS we can raise awareness of the role air quality plays in the health of the Oxfordshire population. We can also identify opportunities for joint projects and make resources available to clinicians to help those with existing respiratory or cardiovascular conditions.

We also have connections with the Oxfordshire Health Foundation Trust community respiratory team. The team works with patients who have uncontrolled respiratory conditions, which air quality can make worse. Local information about poor air pollution and access to publicity campaigns could support these vulnerable residents to better manage their health.

This partnership working can therefore help to reduce the impact of poor air quality on residents' health and use of NHS and we will seek to increase the support offered to the NHS in this area.

Action 2 – Engage with the local NHS system to assess the feasibility of conducting joint work about impacts, costs, health burden and solutions related to poor air quality.

Research and innovation

Air quality is well researched and with two universities in Oxford and other academic links with the University of Birmingham, there is much local research interest. There is an opportunity to utilise these research assets to improve our understanding of air quality in Oxfordshire.

We are already working with academic partners from the University of Birmingham and University of Oxford on the [TRANSITION clean air network](#) and [OxAria](#) air quality research project which uses high resolution sensors across Oxford. TRANSITION has also funded a number of impact focused projects with research undertaken within Oxford leading to academic and policy [publications](#).

The county council's Public Health department are also developing ambitions to be a research centre and there is interest in undertaking research related to the wider determinants of health.

We will further explore opportunities for research projects with academic partners, including opportunities to address research gaps. Much academic research is based on urban air pollution and there is a gap around rural air pollution and rural interventions. As Oxfordshire is mostly a rural county, we believe there is an opportunity to address this gap.

Citizen science may also be a valuable tool for securing engagement with and support for the policy interventions needed to deliver our vision for air quality. Citizen science is scientific research conducted with participation from the public, for example engaging schools in personal air pollution exposure monitoring. We can work with universities to help facilitate this engagement.

Action 3 – Continue to support air quality research projects with academic partners and seek to secure funding for future projects, particularly in rural areas.

Agriculture

Agriculture is the largest source of ammonia emissions in the UK. It is responsible for over 87% of all UK ammonia emissions. Ammonia has negative effects on ecosystems, but also leads to the creation of secondary PM_{2.5} which can have an effect on health over wide areas².

Ammonia emissions have changed very little over the last 20 years, in contrast to all other major outdoor pollutants. Using existing technologies some countries have demonstrated it is possible to significantly reduce ammonia emissions and agriculture's contribution to air pollution.

As Oxfordshire is a predominantly rural county and has a significant agricultural sector, there is scope to better develop our understanding of agriculture's local contribution and raise awareness about the links to air quality.

Action 4 – Identify opportunities to engage with the agricultural sector and raise awareness of air pollution.

Community Action Groups

Community Action Groups (CAG) Oxfordshire consists of over 100 groups across Oxfordshire who are at the forefront of community-led climate change action. The network was started in 2001 and is the largest of its kind in the UK. The CAG network run over 4,000 events per year, attended by around 80,000 local residents.

The groups organise events and projects to take action on issues including waste, transport, food, energy, biodiversity and social justice. Many of these projects will contribute towards improving air quality such as car clubs and community energy projects which will help to reduce emission of air pollutants.

There is an opportunity to increase awareness of air quality and improve partnership working with the CAG network in support of this strategy. This will help to improve engagement with local communities and help to facilitate peer to peer communications about air quality.

Action 5 – Engage with the CAG network and raise awareness of air quality.

National highways

Whilst the county council are the highway authority in Oxfordshire, we are not in direct control of a significant amount of the traffic through Oxfordshire that travels on the Strategic Road Network (SRN). National Highways are responsible for managing the A34 and M40 which carry a significant proportion of traffic in Oxfordshire.

How traffic is managed on these routes, particularly in areas where there are air quality concerns such as Botley near the A34 and Banbury near the M40, is therefore important. It is also important to consider how traffic is routed from the SRN onto local roads.

We will therefore work with National Highways as an air quality partner, to continue to look at mitigating the air quality impact of this traffic. There are a number of measures already in place or being trialled elsewhere in the country that can help to manage air quality impacts from the SRN such as speed limits or better enforcement of existing speed limits.

Action 6 – Continue to work with and lobby National Highways for measures to improve air quality on the strategic road network.

Learning and partnership working

As outlined in this section, there are a range of partners working on different elements of tackling air quality. To ensure a joined up and effective body of work, sharing the learning from these initiatives will be important to deliver our vision for air quality.

In order to deliver our vision, a more comprehensive countywide strategy will also be required with engagement and support from all of the local air quality partners outlined in this section. We propose to use this strategy as a starting point and platform for enabling the development of a countywide strategy.

Action 7 – Provide an annual opportunity for those with an interest and responsibility for air quality to share with others the lessons learned from their respective projects and initiatives.

Action 8 – Develop and agree an Oxfordshire wide Air Quality Strategy by Spring 2026.



4 Reduce

This chapter covers the first part of our strategic approach which is work to reduce or remove the source of air pollutants. This will reduce air pollution and improve residents' health. Reducing emissions from road transport is a key area of focus that we can help to deliver. There are also other ways in which we can help to reduce emissions such as reducing our own council emissions.

Council emissions

The county council directly contributes to air pollution through our fleet vehicles, staff travel, highway assets and estate. We also contract or procure services in a range of areas. These providers contribute to air pollution through factors such as the vehicles used.

We recognise that everybody needs to play their part to transition to net-zero emissions and improve air quality. It is possible to influence and minimise these council emissions through our internal policies and processes.

Much of our current work on reducing council emissions has been conducted from a climate action perspective. Although it is focused on decarbonisation, many of the interventions will also improve air quality due to the focus

on reducing the use of fossil fuels. However, we recognise that moving forward a more dedicated focus on air pollution is required to identify any trade-offs, mitigating measures required and those actions that offer the most benefit for both climate change and air quality.

Oxfordshire County Council Carbon Management Plan

In 2020, we published our [Climate Action Framework](#), setting out how we are going to reduce our emissions, transform into a climate active organization and play our part in Oxfordshire's transition to net zero. As part of this, we committed to reaching net-zero carbon emissions in our estate and operations by 2030.

To build on this commitment, we published a [Carbon Management Plan](#) in May 2022. The Carbon Management Plan sets out the

approach to reducing the emissions from our buildings, highway assets (streetlighting, traffic signals and signage), fleet, and staff business travel.

Delivery of the Carbon Management Plan will help to reduce our use of fossil fuels and contribution to air pollution. Some of the actions we are taking as part of the plan are summarised in the following sections.

Action 9 – Deliver the actions identified in the Carbon Management Plan to reduce emissions from our buildings, highway assets, fleet, and staff business travel.

Estates

Our buildings decarbonisation strategy is based on seven principles that are outlined in the Carbon Management Plan. The plan also includes the planned actions we will be taking to transition our buildings to net-zero. Current actions we are taking to reduce emissions from our buildings include:

- Publishing our property strategy to enable estate rationalization and enhanced investment to reduce carbon emissions.
- Replacing the lights in our buildings with energy-efficient LEDs. This has reduced the energy used for lighting by around 70%.
- Installing solar panels on a number of our buildings.
- Buying green electricity for our estate and highways assets.

Fleet and staff travel

Our fleet includes approximately 382 vehicles³. Our approach to fleet decarbonisation will prioritise avoidance of emissions by rationalising the fleet, encouraging sharing

of resources, and replacing fossil fuels with zero tailpipe emission alternatives. In order to do this we are taking a number of actions including:

- Putting in place the 'One Fleet' system to rationalise fleet usage and support the development of a fleet replacement plan.
- Adopting an 'electric by default' policy that stipulates where operationally feasible all new vehicle acquisitions are zero tailpipe emission by default.
- Installing electric vehicle (EV) charging infrastructure across our estate. We are aiming to electrify all cars and vans by 2028.

The decarbonisation approach for staff business travel prioritises avoiding travel by meeting online when possible. For essential journeys, staff are encouraged to walk or cycle whenever possible. Electric bikes and folding bikes are being trialled as part of our revamped pool bike scheme. For longer journeys staff are encouraged to use public transport. If a journey can't be done by other means, staff are encouraged to use our pool EVs.

Contracts and procurement

We spend over £500m a year with contractors and suppliers to deliver critical services for residents. In order to generate additional economic, social or environmental benefits from our activity we have created a social value policy.

The policy encourages suppliers to commit to providing additional social value that will benefit local communities. Our policy uses the National Social Value Measurement Framework to set out social value themes, outcomes and measures that can be objectively assessed. Reducing air pollution is one of the outcomes included in the framework and is therefore a priority our suppliers can deliver against.

Oxfordshire Fire and Rescue Service fleet

The Oxfordshire Fire and Rescue Service are also looking to expand the use of zero-tailpipe emission and hybrid vehicles within their fleet. This has included a study on how to run a fleet of zero tailpipe emission fire engines. The research was conducted by engineering firm Ulemco in conjunction with Oxfordshire County Council⁴.

³ 2018/19 data, adjusted to know changes in 2020

⁴ <https://news.oxfordshire.gov.uk/new-hydrogen-fire-engine/>

The study concluded that battery electric fire engines would meet emergency response times and water pumping requirements using a combination of stored energy in batteries and onboard hydrogen fuel storage. We are now investigating opportunities to trial a zero tailpipe emission fire engine and expand the use of zero tailpipe emission and hybrid vehicles in the wider Fire and Rescue Service fleet.

Action 10 – Expand the use of zero tailpipe emission and hybrid vehicles within the Oxfordshire Fire and Rescue Service fleet.

Transport

Transport is the largest source NO₂ emissions in Oxfordshire and also contributes to PM emissions. As the highway authority, Oxfordshire County Council is responsible for a range of management functions that can help to reduce these emissions and improve air quality.

Local Transport and Connectivity Plan

The [Local Transport and Connectivity Plan](#) (LTCP) was adopted by the county council in July 2022. The LTCP outlines a clear vision to deliver a net-zero Oxfordshire transport and travel system that enables the county to thrive whilst protecting the environment and making Oxfordshire a better place to live for all residents.

We plan to achieve this by reducing the need to travel, discouraging individual private vehicle journeys and making walking, cycling, public and shared transport the natural first choice. The policies included in the LTCP are the tools that we believe are necessary to achieve this.

Many of the LTCP policies will also help to improve air quality due to the focus on reducing private car use and encouraging active travel.

Delivery of the LTCP will therefore be a critical step in delivering the aspirations of this strategy.

Action 11 – Support delivery of the LTCP, ensuring consideration of air quality in new highway schemes and potential trade-offs with decarbonisation where relevant.

Walking and cycling

Encouraging increased levels of walking and cycling is a central part of the LTCP. More people choosing to walk and cycle will be a key part of reducing private car usage and improving air quality. The LTCP and the supporting [Active Travel Strategy](#) outline the majority of the actions that we will be taking to encourage walking and cycling.

However, in addition there are some specific projects where we are incorporating air quality, e.g. in action to promote active travel to school such as school streets (a timed road closure that restricts access for motor vehicles at school drop-off and pick-up times.)

4 <https://news.oxfordshire.gov.uk/new-hydrogen-fire-engine/>

This work with schools may help to improve air quality at the school gate by reducing traffic near the school and encouraging families to walk. Air pollution data has been measured at some trial sites.

There is an opportunity to expand monitoring work and test the use of real time data, particularly at the school gate. It is hoped that the use of real time data will help families to better understand air quality near schools and encourage behaviour change.

Action 12 – Promote active travel to school and work with air quality partners to monitor air quality at pilot school sites.

Action 13 – Test the use of real time data to promote behaviour change with a specific focus on school gates.

Bus

Encouraging increased bus usage is a key part of the LTCP. More people using the bus will help to reduce the number of private car trips and improve air quality. We are therefore working to encourage bus usage in a number of ways. This includes our work to give buses greater priority in Oxford through the introduction of traffic filters, support to maintain services and reduced park and ride fares. We have also received up to £12.7 million from the governments national bus strategy fund which will be used to deliver measures in our [Bus Service Improvement Plan](#).

Buses are a smaller source of pollutants than cars, but they also contribute to air pollution. In Oxford buses account for approximately 32% of road transport NOx emissions compared to 37% from cars⁵. There are also locations in

Oxford where buses contribute up to 50% of road transport NOx emissions⁶.

We are therefore working to reduce emissions from buses themselves. In 2014, the city and county councils introduced a bus low emission zone (LEZ), requiring all buses in Oxford city centre to meet the Euro V standard for NOx. We are working with the bus operators to update and expand the low emission zone.

As part of our work to expand the bus low emissions zone, a fleet of electric buses will be introduced in Oxford and the surrounding area during 2023 and 2024. This has been enabled with £32.8 million from the Zero Emission Bus Regional Areas (ZEBRA) scheme. We will explore opportunities to build on this work with the bus operators and accelerate the transition to a zero-emission bus fleet across the county.

There may also be local situations where people are exposed to dangerous levels of air pollution in bus stations such as in enclosed stations or where vehicles are left idling. We will work with bus operators to understand and introduce measures to address this issue.

5 https://www.oxford.gov.uk/downloads/file/7320/oxford_source_apportionment_study

6 https://www2.oxfordshire.gov.uk/cms/sites/default/files/folders/documents/roadsandtransport/OCC_ZEBRA_Business_Case_Main_Report_Final_REDACTED.pdf

Action 15 – Work with bus operators to update and expand the Oxford bus low emission zone, deliver the Zero Emission Bus Regional Areas (ZEBRA) scheme and explore opportunities to build on this work and accelerate the transition to a zero-emission bus fleet across the county.

Action 16 – Work with bus operators to introduce measures to reduce exposure to dangerous air pollution concentrations in bus stations.

Rail

Encouraging increased rail usage will also help to improve air quality by reducing private car usage. Opportunities to enhance rail usage in Oxfordshire have been identified through the Oxfordshire Rail Corridor Study and Oxfordshire Connect projects. We will use these projects to guide our approach to rail and priorities for rail investment in Oxfordshire.

Rail also contributes to air pollution, particularly near or within train stations. Air pollution from railways has been falling and contributes a relatively small amount to overall NO_x and PM_{2.5} emissions. However, as with buses, there remain risks that people are exposed to dangerous air pollution concentrations at the local scale such as in enclosed train stations, particularly where diesel trains are left running⁷.

There continue to be diesel trains in operation in Oxfordshire. Not all of the Great Western mainline is electrified, notably Oxford to Didcot

Parkway. The infrastructure planned for the East West Rail link from Oxford to Cambridge, is also not planned to be electrified.

We will continue to lobby air quality partners for the decarbonisation of the rail network in Oxfordshire, including electrification. We will also lobby air quality partners to reduce exposure to dangerous air pollution concentrations at train stations by introducing measures such as reducing the amount of time diesel trains are left running.

Action 18 – Lobby for electrification of railways in Oxfordshire and measures to reduce exposure to dangerous air pollution concentrations in train stations.

Action 19 – Identify whether the train operators have a policy on idling in stations, how much idling in stations there is of diesel trains and if operators have done an air quality assessment of the impacts.

⁷ https://www2.oxfordshire.gov.uk/cms/sites/default/files/folders/documents/roadsandtransport/OCC_ZEBRA_Business_Case_Main_Report_Final_REDACTED.pdf

Zero tailpipe emission vehicles

Cars are the largest source of NOx emissions in Oxfordshire and contribute significantly to air pollution. Whilst we are aiming to reduce car usage and make walking, cycling, public and shared transport to be the natural first choice for journeys, we recognise that cars will still be a part of Oxfordshire's transport system.

It is therefore crucial that we encourage cars to be zero tailpipe emission to reduce air pollution. A zero emission vehicle (ZEV) is defined as one which emits 0g of carbon dioxide from the tailpipe per kilometre travelled and typically refers to Battery Electric Vehicles (BEVs). Whilst ZEVs do not have any tailpipe emissions, they will still produce particulate matter emissions from brake and tyre wear.

Our LTCP includes strong policies that seek to promote ZEVs before internal combustion engine vehicles. A number of these policies are already being delivered.

The first policy to promote zero-emission vehicles is investigating the use of Clean Air Zones (CAZs) and Zero Emission Zones (ZEZs). These are areas where vehicles with higher tailpipe pollutant emissions (CAZ) or all vehicles except those with zero tailpipe emissions (ZEZ) are restricted or charged for access.

A ZEZ for Oxford was proposed in 2015 as part of our fourth Local Transport Plan. A ZEZ Pilot started in February 2022 covering several streets in Oxford City Centre. It is planned to have a wider ZEZ in place covering most of Oxford city centre.

Comprehensive, accessible and efficient charging and fuelling infrastructure is also essential in enabling the rapid adoption of ZEVs. Therefore, along with our partners in the district and city councils, we have developed and adopted the [Oxfordshire Electric Vehicle Infrastructure Strategy](#) (OEVIS), which sets out 17 policies and associated key actions for the short term (2020-2025). At the time of writing in 2020, it was estimated that the equivalent of 1,636 further 3-7kW public charge points could be required to meet potential demand by 2025. We have delivered a number of notable projects from the strategy including the [Park and Charge](#) project.

Action 20 – Deliver projects to encourage the uptake of zero tailpipe emission vehicles and work in association with our district and city councils to deliver the OEVIS.

Parking and congestion management

Oxfordshire County Council as the highway authority is responsible for a range of management functions. This includes working to manage congestion, and on-street parking.

These functions will play a role in helping to deliver our LTCP and encouraging the use of walking, cycling, public and shared transport. As outlined previously, this will also be key to improving air quality. Details of our full approach to parking and congestion management can be found in the LTCP and supporting strategies. There are several policies that are of particular relevance to air quality and so have been highlighted in this strategy.

As part of our approach to parking management we will take measures to reduce and restrict car parking availability. This will contribute to reduced reliance on private cars and improved air quality. The removal of car parking spaces will also help to free up space for greenery or seating. We are already taking action to control on-street parking in Oxford through the introduction of Controlled Parking Zones.

We are also planning to investigate demand management measures, where appropriate. Demand management measures seek to

actively discourage private car use such as traffic reduction schemes, traffic filters or congestion charging. We are planning to deliver several demand management schemes, including traffic filters, a workplace parking levy and ZEZ as part of the Central Oxfordshire Travel Plan.

Demand management schemes would make private car use less attractive and will therefore reduce private car use and improve air quality.

Action 21 – Deliver parking controls, traffic reduction schemes and congestion management measures to reduce private car use and improve local air quality.

Network management

The Traffic Management Act (2004) places a duty on the council as highways authority to reduce and manage congestion and to collaborate effectively with other traffic authorities to achieve this. We are also responsible for ensuring a co-ordinated approach to maintaining public safety through

approval of all works on the public highway. These responsibilities are known as our Network Management Duty.

The core purpose of network management is to tackle congestion and ensure the safe, free-flowing movement of traffic, people and freight across the Oxfordshire road network. However, it also has the potential to influence travel choices by prioritising public transport, walking and cycling.

Network management can help to improve air quality by supporting the uptake of sustainable transport modes, reducing congestion and idling traffic and deterring use of inappropriate roads such as those in air quality management areas.

Our approach to network management is outlined in our [Network Management Plan 2023-2028](#) that was approved by cabinet in February 2023. The plan sets out that we will use evidence to investigate the relationships between congestion, air quality and noise to identify what measures and innovative transport solutions could be introduced to minimise the impact of congestion on the environment and quality of life. Air quality is also identified as a performance management indicator.

Action 22 – Undertake Network management as part of an integrated approach to promote traffic flow and reduce idling traffic particularly in locations where there are groups vulnerable to poor air quality.

Action 23 – Utilise evidence to investigate the relationships between congestion, air quality and noise to identify what measures and innovative transport solutions could be introduced to minimise the impact of congestion on the environment and quality of life.

Planning

Planning is both the responsibility of the city and district councils and ourselves. The city and district councils are responsible for local planning functions such as the provision of new housing, employment and leisure, whilst the county council have the statutory planning function for Minerals and Waste and our own developments such as schools and roads.

The responsibilities are undertaken through both determining planning applications and preparing Local Plans to guide future development. The city and districts each prepare their own Local Plan and we prepare the Oxfordshire Minerals and Waste Local Plan. Together the plans form the Development Plan for Oxfordshire against which all planning applications are determined.

Minerals and Waste Local Plan

The county council are the minerals and waste planning authority in Oxfordshire. We are responsible for producing the Minerals and Waste Local Plan and for determining all Minerals and Waste planning applications. Our adopted [Minerals and Waste Local Plan Part 1: Core Strategy](#) was adopted in 2017.

The Core Strategy sets out the vision, objectives and policies for meeting development requirements for the supply of minerals and the management of waste in Oxfordshire over the period to 2031. It provides a policy framework for identifying sites for new minerals and waste developments and for making decisions on planning applications.

Air quality is currently included within the Core Strategy. Policy C5 outlines that proposals for minerals and waste development will demonstrate that they will not have an unacceptable adverse impact on the local environment or human health, including from air quality. Conformity with this policy is assessed within the determination of each Minerals and Waste planning application.

The county council are now working to prepare a new Minerals and Waste Plan, which upon adoption will replace the current Core Strategy. We will ensure air quality is included within the new plan to reduce emissions from minerals and waste sites.

Action 24 – Consider and where possible enhance references to air quality in the new Minerals and Waste Local Plan.

Waste

The county council are also responsible for the disposal of household waste collected across the county. Waste disposal primarily contributes to air pollution through car trips to household waste recycling centres and vehicles used to transport waste.

We are encouraging Oxfordshire residents to avoid producing waste in the first place by reusing and reducing what they buy and repairing what they already have. We have a waste wizard tool and are developing a circular economy strategy to assist with this. This will help to reduce the number of car trips to household waste recycling centres and the associated air pollution.

There are currently few ZEVs for the movement of waste. Technology is further behind in the heavy goods vehicle sector and there is less certainty about when alternative fuels will be adopted at scale. We will therefore continue to monitor technological developments in the sector, including the potential for hydrogen vehicles. In the meantime, many of our waste contracts already specify use of the most recent emission standards for diesel vehicles (Euro 6).

There is also some air pollution associated with landfills which emit methane gas. Methane is relatively non-toxic and poses little direct harm to human health however it does pose notable environmental concerns as a greenhouse gas, and it contributes to the formation of ozone⁸.

We have reduced the amount of waste we send to landfill to under 3% and manage landfill gas where appropriate to reduce the emissions of methane to air. Where residual waste is produced, we have the Ardley energy recovery facility (ERF) which burns residual waste to produce electricity. The ERF has technology to capture and control pollutants and is subject to very strict regulations and monitoring.

Action 25 – Work to reduce air pollution from waste disposal including development of the circular economy strategy.

Domestic heating

The heating of buildings presents an important source of indoor and outdoor air pollution. There are various forms of domestic heating that contribute to air pollution including the burning solid fuel. Residential and small scale combustion is the largest source of PM_{2.5} in the UK (43%) and second largest source of sulphur dioxide (25%). Domestic combustion accounts for around 19% of NO_x emissions in Oxford⁹.

There is a substantial difference between the least and most polluting methods of domestic heating. Solid fuels are by far the most polluting method of domestic heating, and wood burning has increased in popularity over recent years. This has been further compounded by high energy costs and has the potential to worsen local air quality¹⁰.

By reducing the amount of fossil fuels burnt through better energy efficiency or a move to more sustainable fuels air quality can improve. As with council emissions, much of the county councils work in this area has been driven by climate objectives but air quality improvements are a co-benefit to many of the solutions.

Domestic wood burning

As highlighted previously residential and small scale combustion is the largest source of PM_{2.5} in the UK and a large proportion of this comes from wood burning. Domestic wood burning has negative impacts on both indoor and outdoor air pollution. Currently the county council do not do any direct work to address domestic wood burning.

There are existing government regulations¹¹ that allow the district and city councils to declare smoke control areas. These are areas where there's a limit on how much smoke can be released from a chimney and only authorised fuel can be burnt. It is possible for penalties or fines to be issued where chimneys are releasing too much smoke or to people burning unauthorised fuel. There are a number of smoke control areas across the county.

In order to reduce domestic wood burning we will support joint campaigns with the district and city councils and other air quality partners. We will also investigate conducting targeted work for vulnerable residents with air quality partners. For example, working with the NHS to target residents with existing respiratory conditions.

8 Chief Medical Officer's annual report 2022: air pollution

10 Chief Medical Officer's annual report 2022: air pollution

9 Oxford Source Apportionment Study | Oxford City Council, 2020

11 The Clean Air Act 1993 and the Environment Act 2021

Action 26 – Support joint campaigns about domestic wood burning with the district and city councils and other air quality partners.

Action 27 – Investigate conducting targeted work about domestic wood burning for vulnerable residents with air quality partners.

Trading Standards

The county council is responsible for enforcing over 200 pieces of legislation through our trading standards function. Some of the legislation that we can enforce supports improved air quality, particularly in relation to domestic heating.

The Domestic Minimum Energy Efficiency Standard (MEES) regulations set a minimum energy efficiency level for domestic private rented properties. Trading Standards have worked in partnership with the district and city councils to delegate these powers to Private Sector Housing Teams.

We can also enforce the Domestic Solid Fuels Standards (2020) which aims to improve air quality by ensuring wood burnt for domestic use meets certain standards such as carrying the “Ready to Burn” branding¹².

Heat pump programmes

Many homes in the UK are reliant on gas boilers for heating. The combustion process in gas boilers is a source of NOx emissions and when gas boilers are not working properly, they can emit harmful carbon monoxide.

Gas boilers are also a source of carbon emissions and are being phased out in new homes from 2025. Therefore, there has been ongoing work to identify alternative solutions. Heat pumps are one solution that is being explored. Heat pumps capture heat from outside and move it into the home using electricity.

We are involved with two heat pump ready programmes that seek to move heat pumps to being a known and trusted technology to drive mass adoption. The programmes are conducting separate projects in Oxford and Cherwell, funded by the government.

12 https://uk-air.defra.gov.uk/assets/documents/reports/cat09/1901291307_Ready_to_Burn_Web.pdf

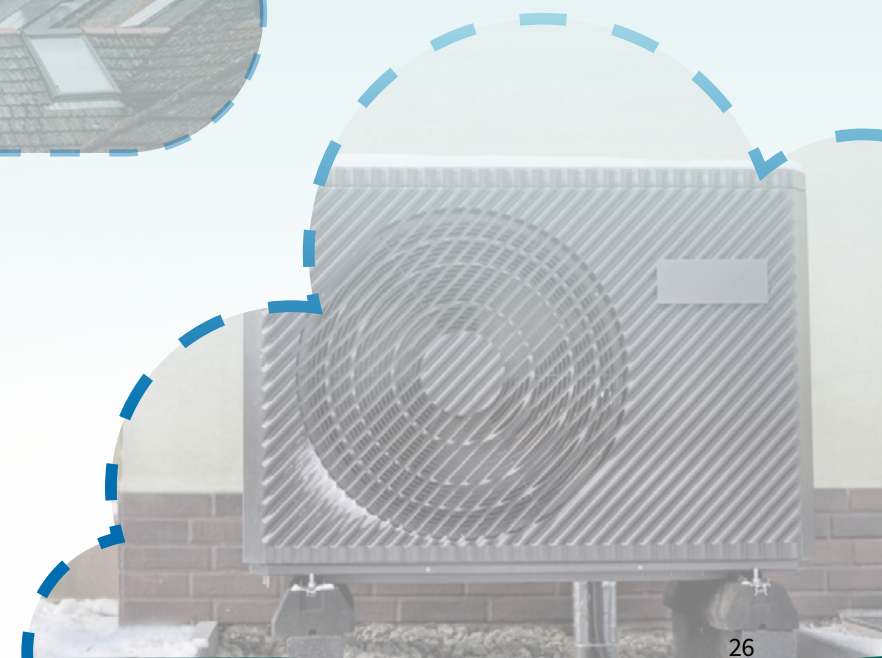
Oxfordshire Energy Strategy

The Oxfordshire Energy strategy was produced by the Oxfordshire Local Enterprise Partnership (OxLEP) in 2021. It sets out an ambitious framework to enable the county to be at the forefront of energy innovation to foster clean growth.

One key project we are involved with to support delivery of the strategy's outcomes is Project Local Energy Oxfordshire (LEO). Project LEO is a cross-sector collaborative project that is trialling a range of local energy solutions.

All of the trials being conducted as part of Project LEO will help to improve air quality by accelerating our transition to a zero-carbon energy system. The project includes a heat pump trial in Deddington which will help to progress work on domestic heating.

Action 30 – Work with local partners to deliver the Oxfordshire Energy Strategy and supporting projects.



5 Extend

Where it is not possible to reduce emissions, we will work to extend the distance between emission sources and human receptors. Pollutant concentration is highest close to the emissions source but decreases with distance. Increasing the distance therefore helps to reduce the pollutant concentration at the point of exposure.

Transport

The majority of our transport work focuses on reducing and removing air pollution emission sources. However, some of our transport work also helps to extend the distance between residents and the sources of air pollution, whilst contributing to reducing emissions from private cars.

During May 2022, we introduced the trial of three low traffic neighbourhoods (LTN) in East Oxford. LTNs are residential areas where through motor traffic is prevented, whilst still allowing access for people walking and cycling. LTNs create walking and cycle friendly streets and help to improve air quality by reducing through car traffic. They also help to reduce residents' exposure to high levels of air pollution by extending the distance between where people live and high levels of car traffic.

We are monitoring air quality in the East Oxford LTNs using diffusion tubes, which measure the levels of nitrogen dioxide (NO₂) in the air. We are also monitoring air quality on boundary routes to assess whether there are any air quality impacts due to the displacement of traffic. We intend to compare 2022 air quality data with 2021 data to assess the impacts of the LTN trials.

Action 31 – Work with a range of data sources to understand the air quality impacts of LTNs and take action to mitigate any negative impacts identified.



Planning

The city and districts each prepare their own Local Plan which guide future development proposals. The location of new developments is important to encourage both the reduction of air pollution and extend the distance between new housing, business, education or leisure facilities and sources of air pollution such as major roads.

Air quality is included as a consideration in local plans with specialist input provided by the relevant district and city council environmental protection teams. The district and city councils have also produced air quality guidance for developers to support local plans and air quality impact assessments may be required for some planning applications.

The county council work closely with the district and city councils to help inform the contents of the local plans and consider alignment across the county. We are also a statutory consultee and able to formally respond to district and city council local plans and their major planning applications.

Through this process we are able to highlight concerns in a range of areas including air quality as part of our health impact

assessments of strategic sites and major highways schemes, particularly where this is related to county council functions such as transport. We will ensure air quality impacts are included as a consideration in county council planning consultation responses. Whilst specialist input is provided by the relevant district and city council teams, we believe there is value in highlighting air quality concerns to reinforce and raise the profile of air quality and its impact on health.

In order to assist with responses to planning applications, we are also well placed to lead the development of a local air quality impact assessment tool which can be used when assessing the health impacts of schemes. A similar tool has been developed in the West Midlands to evaluate the health and economic impacts of current and future air quality scenarios¹³.

We are proposing to develop the assessment tool so that robust and practical air quality assessments can be made, particularly around developments at strategic sites. We will make the tool available to a range of stakeholders such as our district and city councils for countywide usage.

Action 32 – Ensure air quality impacts are included as a consideration in county council planning consultation responses including in Health Impact Assessments of strategic developments and major infrastructure schemes, particularly where this is related to county council functions such as transport.

Action 33 – Develop and test the use of a local air quality impact assessment tool as part of health impact assessments.

13 <https://wm-air.org.uk/project/health/>

6 Protect

Finally, we will work to protect the most vulnerable residents. Children, pregnant women, the elderly and those with existing health conditions are most vulnerable to the negative health impacts of air pollution. We will therefore work to protect these groups when it is not possible to reduce emissions or extend the distance from them.

Behaviour change

In order to reduce emissions and improve air quality, widespread behaviour change will be required in a range of areas. We have outlined some of the actions we are taking to enable this behaviour change. However, these have largely been focused on infrastructure. We recognise that just providing infrastructure is not enough and other supporting actions will be needed.

Community activation

Community activation is the process of enabling people to obtain the health and wellbeing benefits of assets in their local community. It aims to enable people to make healthy decisions. It particularly focuses on working with local community groups to engage residents who may experience greater barriers to enjoying a healthy lifestyle.

Community activation involves co-production of initiatives with local community groups. This engagement can identify common barriers to healthy behaviours and develop local solutions such as free bike repairs for low income families, family based cycle training or guided walks and walking buddy schemes.

The LTCP outlines that we will ensure cycling and walking schemes are supported by community activation measures and promotional programmes. This will enable the whole community to benefit from improvements and help to improve air quality in all parts of the county.

Action 34 – Support walking and cycling schemes with community activation measures.

Travel planning

Our travel plan team work with housing developers and schools to create plans that encourage active and sustainable travel. Similarly, we are seeking to work with employers and businesses in the county to improve promotion and education of travel choices.

This work helps to encourage behaviour change that will improve air quality as well as working to remove existing barriers such as lack of understanding or training. One example of the measures we have implemented with schools and their benefits, school streets, has been covered previously in this strategy.

Action 35 – Conduct travel planning work with schools, businesses and employers, that will support air quality improvements.

Publicity and communication

Awareness and understanding of air pollution is also important to encourage behaviour change and generate buy-in from stakeholders across the county. This strategy is a first step to raise awareness and understanding of air quality in Oxfordshire.

There is further publicity and communication that the county council can conduct moving forward. This could include utilising our social media channels and working with air quality partners such as the NHS on joint campaigns. Communications could include information about vehicle idling, health impacts, indoor air pollution and days with high levels of air pollution to help protect our most vulnerable residents. There is also an opportunity to increase references to air quality in our press releases.

Action 36 – Create an air quality communication plan, linking it with the work of the district and city councils and other air quality partners.

Decarbonisation

In recognition of climate change, all Oxfordshire authorities have declared a climate emergency. Following our declaration, Oxfordshire County Council adopted a Climate Action Framework and with partners commissioned the Pathways to a Zero Carbon Oxfordshire (PaZCO) which sets out a transition plan for net zero in Oxfordshire. We have also signed up to the UK 100 net-zero pledge.

As highlighted previously, many of the interventions required to reduce carbon emissions will also help to improve air quality. Therefore, there is an opportunity to combine behaviour change work and communications.

It is also important to raise awareness of potential areas of conflict, for example the use of bio-mass boilers can emit NO₂, PM and SO₂ and replacing cars like for like with BEVs risks increasing the production of PM_{2.5} from tyre and brake wear. Combining this work and improving communication will help to ensure residents are protected from any unintended negative consequences of decarbonisation work.

Action 37 – Continue to make the link between the benefits of carbon reduction and air pollution and raise awareness of carbon reduction interventions which may worsen air quality, including during development and delivery of PaZCO action plans.

Health and social care data

We already have a large amount of data about vulnerable residents from our Adult and Housing Services team. This includes data about care homes, elderly residents and those with existing health conditions. These residents are the most vulnerable to the negative health impacts of air pollution and should be a priority to protect.

We will work with our Adult and Housing Services team to utilise their data about vulnerable residents and potential hospitalisations due to air pollution. This understanding can then be used to target communications about air quality and target geographical areas with air quality interventions.

Action 38 – Use health and social care data to identify vulnerable communities that need to be prioritised for protection.

Planning

As part of the planning process, Health Impact Assessments (HIAs) are used to identify the health impacts of a plan or project. They also produce recommendations for decision makers and stakeholders which aim to maximise a proposal's positive health effects and minimise its negative health effects, while maintaining a focus on addressing health inequalities.

As part of the LTCP, we will expand the use of HIAs to include all major transport schemes or plans. This process will include consideration of air quality as a potential health impact and will therefore help to protect residents.

Action 39 – Ensure air quality is included as a potential health impact when conducting HIAs on major transport schemes or plans and any adverse impacts on local air quality are effectively mitigated.

Domestic heating

As well as our work to reduce emissions from domestic heating, we are also working to protect vulnerable residents. Fuel poverty is caused by three key factors: the cost of fuel, the energy efficiency of the home and income of the household. It is defined as a household being unable to affordably heat their home.

Single parents, families with young people and older people are more likely to experience fuel poverty. Many of these groups are also the most vulnerable to the negative health impacts of air pollution. In addition, homes which are privately rented tend to have some of the poorest energy efficiency. The percentage of homes who are fuel poor is greater in rural areas, compared to urban areas.

Fuel poverty may be caused by poorly insulated homes or inefficient heating systems. Fuel poverty can lead to homes being inadequately heated increasing the risk of indoor air pollution from damp and mould. Households without mains gas are more likely to be in fuel poverty and may use alternative heating methods such as burning solid fuel which negatively impact both indoor and outdoor air pollution¹⁴.

Whilst the fuel poverty rate is low in Oxfordshire, about 11% in 2019, more fossil fuels may be unnecessarily burnt in these homes. It is also likely to be increasing due to high energy costs and the cost of living crisis declared in October 2022.

The county council are working in partnership with the district and city councils to provide advice and support to any Oxfordshire resident to help tackle fuel poverty as well as improve the energy efficiency of home. An advice service “Better Housing Better Health” provides free telephone support and is piloting home visits for more vulnerable tenants. The service supports around 600 residents each year. We have also delivered Green Homes Grant and Sustainable Warmth Fund projects.

Action 40 – Continue work to provide energy efficiency advice and bid to retrofit programmes to support those in fuel poverty. Include reference to the benefits of improving indoor and outdoor air pollution as a result of a move away from fossil fuels.



7 Monitoring

Monitoring of air quality is primarily undertaken by the city and district councils who are required to monitor air quality and produce annual air quality status reports. This monitoring work provides valuable insight and underpins the majority of our understanding about air quality in the county.

Moving forward, the city and district councils will continue to conduct the majority of air quality monitoring in the county. However, there are opportunities for the county council to support this work and better integrate air quality monitoring into our work.

We are currently exploring funding opportunities for air quality work and will continue to explore these. Additional funding to expand air quality monitoring will help us to support the existing district council work and improve local understanding of air quality. It may also enable us to start addressing research gaps such as rural air quality monitoring and develop a countywide real time air quality monitoring network. Funding is also required to continue some of our existing air quality monitoring projects such as [NEVFMA](#).

Action 41 – Secure funding to allow the continuation of existing air quality monitoring projects.

Action 42 – Secure funding for new air quality monitoring projects and the utilisation of data and insights from existing research.

We are also working to integrate air quality monitoring into our existing monitoring and evaluation work. For example, we are beginning to monitor the impact of active travel projects on air quality. There is an opportunity, to expand this work and work with our air quality partners to develop a joined up, integrated approach to local air quality monitoring.

We are also looking at opportunities to standardise different air quality monitoring techniques and datasets that we have access to, such as those from different kinds of sensors, so that we have comparable data. We will engage with the city and district councils on this work to agree the relevant technical standards.

With all monitoring work, we will utilise the [Oxfordshire Air Quality website](#) to share and store data with the city and district councils so that it can be used to support their statutory monitoring requirements and inform development of their air quality plans.

Action 43 – Work with our Air Quality Partners to develop a joined up, integrated approach to local air quality monitoring. This monitoring will adhere to best practice and British standards to collect the most accurate and robust data possible.

Action 44 – Utilise the Oxfordshire Air Quality website to share data with the city and district councils.

Whilst air pollution concentrations are accurately measured in certain locations, there is currently a gap in understanding about the general population's exposure to air pollution. We will therefore work with our air quality partners to conduct modelling of population exposure across Oxfordshire. This will help us to better understand health impacts on the whole population and develop quantified local population exposure targets for PM_{2.5} and NO_x.

Action 45 – Work with air quality partners to carry out population exposure modelling and develop local population exposure targets for PM_{2.5} and NO_x.

Continuous learning and feedback

We welcome any comments on this document and invite County Council colleagues to let us know if we haven't included your air quality related work. Please e-mail healthyplaceshaping@oxfordshire.gov.uk