
# Air Quality Strategy 2024

## Document Control

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# Executive Summary

The Local Air Quality Management (LAQM) Framework supported by the Environment Act 1995 sets local objectives put into place through the Air Quality (England) Regulations 2000 (as amended in 2002). The framework requires local authorities under the Environment Act 1995 to review and assess local air quality within their areas. If any areas are found where pollutants exceed the objectives, local authorities are required to declare an Air Quality Management Area (AQMA) and to prepare an Air Quality Action Plan (AQAP) setting out measures they intend to introduce to reduce concentrations of air pollutants, in pursuit of achieving the objectives and improving air quality.

In addition to these formal obligations for LAQM, local authorities are required by the Department for Environment, Food and Rural Affairs (Defra) to produce and implement local Air Quality Strategies. The aim of the Air Quality Strategy (AQS) is to support the achievement of the air quality objectives and to ensure air quality is considered within a wide range of local government and regional planning frameworks. It aims to drive greater improvements in air quality at the local level and it will be reviewed on a 5-yearly basis. The AQS is important, as whilst working towards achievement of the air quality objectives, it will help reduce the risk of health effects related to exposure to air pollution. There are advantages to be gained from the continual improvement of local air quality. By establishing a strategic framework for the inclusion of air quality considerations within Council policies and procedures, a local authority is then well placed to maintain good air quality and secure future improvements.

Delivering improvements to local air quality requires input from a wide range of professions and partnerships. Therefore, this Strategy identifies commitments intended to promote communication and co-operation within Cheshire East Council, between external organisations and the community. These commitments are grouped under several relevant policy sectors including air quality, development control and spatial planning, transport and non-road mobile machinery, climate change and energy management, public health, education and awareness, indoor air quality, industrial, commercial, and domestic sources, and agriculture.

Six indicators have been proposed to help track the success of the Strategy, which are reported to the Air Quality Steering Group annually. In addition, assessing new developments for their impact on air quality, as well as improving the public awareness of air quality are included in the indicator set. Using these metrics, the effectiveness of the Strategy can be evaluated throughout the lifetime of the document.

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# 1 Introduction

Over a number of years, air quality in Cheshire East has improved; monitoring demonstrates that levels of Nitrogen Dioxide ($NO_2$) are reducing year on year. The air quality in Cheshire East is generally good, although there are several Air Quality Management Areas (AQMAs) across the borough. These AQMAs were declared due to exceedances of $NO_2$ from vehicle emissions. Details of these AQMAs can be found on the Council's website (www.cheshireeast.gov.uk). Whilst vehicular emissions are a significant contributor to air pollution within the borough, it is not the only contributing factor. Therefore, this Air Quality Strategy (AQS) highlights other sources of emissions, such as domestic, industrial, and agricultural activities, and sets out the Council's approach to these emission sources.

The pollutants of concern in Cheshire East are $NO_2$, and Particulate Matter (PM). These particles are referred to as $PM_{10}$ and $PM_{2.5}$ and are below 10 and 2.5 micrometres in diameter respectively.

We monitor $NO_2$ across the borough using diffusion tubes. There is also a Real-Time Analyser (RTA) located at Disley. The RTA monitors $NO_2$ and PM. Monitoring of these pollutants, helps the Council to understand pollutant concentration and trends across the borough.

Local authorities have a duty under Section 83(1) of the Environment Act 1995 to review and assess local air quality within their areas against a set of health-based objectives for several specific air pollutants. These objectives are included in Appendix 1. Defra have advised that in recognition of the fact that all the objectives for Benzene, 1,3-Butadiene, Carbon Monoxide and Lead have been met for several years and are well below objective values, local authorities do not have to report on these pollutants unless local circumstances indicate otherwise.

Under the Environment Act 2021, national legally binding long-term targets have been set to reduce concentrations of $PM_{2.5}$. An overview of the health effects of the pollutants for which air quality objectives have been included in regulations is set out in Appendix 2.

When areas are found where pollutants are either exceeding or close to the objectives, in locations where there is relevant exposure, local authorities are required to declare an AQMA and to prepare an Air Quality Action Plan (AQAP). The purpose of the AQAP is to set out measures the local authority intends to take to reduce concentrations of pollutants in pursuit of the objectives. In addition, local authorities should also promote opportunities to reduce pollutants in areas which are not exceeding the objective, to ensure good air quality is maintained as much as possible across the entire borough.

In addition to the statutory obligations of Local Air Quality Management (LAQM), local authorities are also required by Defra to implement a local AQS setting out how the

Council intends to address air quality across all services and in all relevant decisions. Therefore, it is important this document is aligned with the Council's plans and strategies, such as the Local Transport Plan (LTP), Local Plan Strategy (LPS), Electric Vehicle Infrastructure Strategy, Environment Strategy, Carbon Neutral Action Plan, and the Cheshire East Local Plan (LP).

The Annual Status Report (ASR) is submitted annually to Defra, which contains the results of all the monitoring undertaken. It also provides updates on the actions employed by local authorities to improve air quality, and any progress that the local authority has made over the reporting year.

# 2 About the Air Quality Strategy

The AQS is a document which is aimed at informing policy and direction across a wide range of council services to assist in ensuring air quality is considered in all relevant decisions and help improve air quality where possible. It establishes the framework and identifies actions to improve air quality in Cheshire East. Cheshire East Council takes preventative action through the AQS, rather than waiting for a legal limit to be breached.

It fulfils the statutory requirement of the Environment Act 1995, as amended by the Environment Act 2021, to publish an AQS setting out air quality standards, objectives, and measures for improving ambient air quality. Strategies should be reviewed every 5 years.

The current Cheshire East Council AQS is dated 2018 and therefore any new strategy will build upon previous actions and include new appropriate measures to take forward.

## 2.1. Aims and objectives

The aim of the AQS is to provide a strategic framework to deliver local air quality improvements and contribute to long-term air quality goals within Cheshire East. The AQS supports the achievement of the air quality objectives, including the ambitious new national targets for $PM_{2.5}$, and elevates air quality as an issue for consideration within a wide range of local government and regional frameworks.

It is important to reduce, where possible, public exposure to certain pollutants, even where levels are below the air quality objectives, to support a healthier population and reduce premature death. This is particularly important for fine particulate matter, where there are currently no known safe levels of exposure. By establishing a strategy framework which positions air quality considerations at the heart of Council policies, procedures, and decisions, this will ensure Cheshire East is well placed to maintain good air quality and secure future improvements across the borough.

Through these objectives, Cheshire East will achieve the aims of the AQS.

The objectives of developing and implementing an AQS are to:

- Ensure Cheshire East maintains good air quality conditions across the borough.
- Improve air quality within existing AQMAs and prevent further deterioration, even in those areas where air quality is currently below the objective.
- Promote greater consistency across a range of policy areas for the achievement of improved local air quality, including Spatial Planning, Development Management, Highways and Strategic Infrastructure,

Economic Development, Housing, Environmental Protection and Public Health. This will ensure air quality is addressed in a multi-disciplinary way across the different departments of the Council.

- Provide a link to wider initiatives across the Council, which could have an impact on air quality, including supporting our borough-wide target to be net-zero by 2045.
- Raise and maintain the profile of air quality and ensure it remains high on the political agenda.
- Highlight and educate stakeholders about the link between air quality and the risks to human health, the wider local environment, carbon reduction and biodiversity.
- Raise the profile of air quality amongst the local communities across Cheshire East.
- Encourage greater co-operation and collaboration with neighbouring local authorities, local business, industry, and residents.
- Provide the first point of contact and source of information relating to local air quality.

# 3 Policies

Policies and programmes for action at all levels of government, can impact on local efforts to improve air quality at specific localised hot spots or reduce concentrations more generally across an area. Some of the relevant policies are discussed below.

Figure 1 shows some of the inputs to the Strategy, policy areas which should be influenced by the Strategy and the main outcomes following implementation of the Strategy.

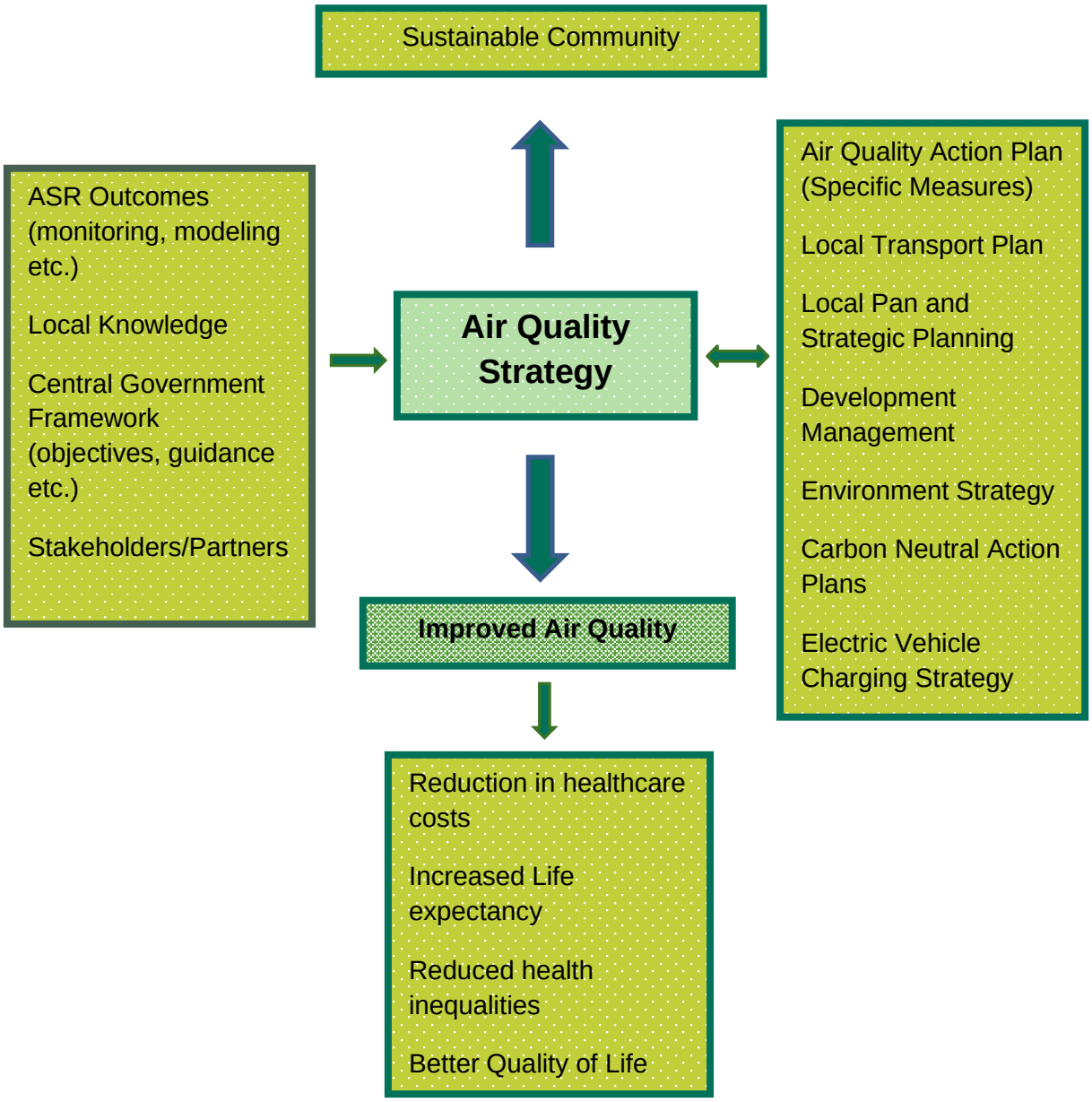


**Figure 1: Inputs and outcomes of the Air Quality Strategy**

**3.1** **Central Government Framework** – this consists of objectives, legislation, guidance, the National Planning Framework, and policy measures that will improve air quality. These central polices help local authorities to manage and be responsible for the air quality in their respective areas. They also set out the powers under which local authorities can deliver actions on air quality.

**3.2** **Cheshire East Local Plan (LP)** – comprises a wide range of documents for delivering the spatial planning strategy for the local authority. The Local Plan sets planning policies, allocates sites for development, and is used to make decisions on planning applications. It addresses issues such as the amount and location of new housing and employment development, protection and improvement of important open areas, provision of new infrastructure, and improvement of town centres and community facilities.

**3.3** **Cheshire East Local Plan Strategy (LPS)** – sets out the overall vision and planning strategy for development in the borough and contains planning policies to ensure that new development addresses the economic, environmental, and social needs of the area[1]. Some of the strategic priorities of the LP include: "Protecting and enhancing environmental quality" and "Reducing the need to travel, managing car use and promoting more sustainable modes of transport and improving the road network". These strategic priorities, aim at reducing the boroughs impact on climate change, promoting renewable energy, and addressing local causes of pollution such as air pollution. The LPS also addresses sustainable development, planning, transport and travel, travel plans and transport assessment.

**3.4** **Site Allocations and Development Policies Document (SADPD)** **–** the SADPD is the second part of the Cheshire East Local Plan and provides detailed planning policies and site allocations in line with the overall approach set out in the Local Plan Strategy[2]. It includes policies that seek to assist with air quality improvements, including the protection and enhancement of trees, hedgerows, and woodlands. The document is also clear that planning permission will be refused where the construction or operational characteristics of development would cause harm to air quality (including cumulatively with other development) unless suitable mitigation measures are adopted to mitigate the impact.

**3.5** **Cheshire East Local Transport Plan (LTP)** – the biggest contributor to air pollution within Cheshire East is road transport. This impact on air quality is

[1] https://www.cheshireeast.gov.uk/planning/spatial-planning/cheshire_east_local_plan/local-plan-strategy/local_plan_strategy.aspx

[2] https://www.cheshireeast.gov.uk/planning/spatial-planning/cheshire_east_local_plan/site-allocations-and-policies/sadpd-examination/documents/examination-library/adopted-sadpd.pdf

indicative of high car ownership in Cheshire East with 40% of households having two or more cars against a UK average of 29%[3].Therefore, the LTP provides one of the principal mechanisms for delivering an improvement to air quality across Cheshire East. It is a strategic plan for the development of transport within Cheshire East, outlining how transport will contribute to and support wider policies to improve our economy, protect our environment and make attractive places to live, work and play.

**3.6** **Cheshire East Environment Strategy** – sets out the Council's priority actions to reduce environmental impact and become a carbon neutral Council by 2027[4]. The strategic goals of the Strategy are to become carbon neutral by 2027, reduce waste, improve air quality, ensure new development is sustainable, increase sustainable transport and active travel and protect and enhance our natural environment.

**3.7** **Carbon Neutrality Action Plans** – the Council have set out how they will achieve carbon neutrality for its operation and is in the process of establishing the borough-wide Carbon Neutrality Action Plan to achieve net-zero across the borough by 2045. These plans include the promotion of sustainable and active travel, and the electrification of transport and heat, including the Council's own vehicle fleet and buildings.

**3.8** **Cheshire East Electric Vehicle Charging Strategy** – directly supports the Council's aim of reducing carbon emissions and improving air quality by accelerating the transition to electric vehicles, supporting the ambitions outlined within the LTP.

[3] https://moderngov.cheshireeast.gov.uk/ecminutes/documents/s72327/Local%20Transport%20Plan%20-%20app%201.pdf

[4] https://www.cheshireeast.gov.uk/pdf/environment/environment-strategy-2020-24-final.pdf

# 4 Strategy Commitments

To fulfil the objectives of this Strategy and ensure that air quality improvements are achieved, both in locations which currently exceed the objectives, and more generally across the local authority area, Cheshire East Council has identified the following commitments. These commitments reflect the need to achieve the national air quality objectives, whilst working to improve general air quality conditions throughout the local authority area.

## 4.1 General

- Engage in all practicable opportunities to improve air quality through transport and spatial planning processes and through wider policy initiatives, such as climate change and health improvement programmes.
- Work with the Government and its agencies to contribute, at a local level, to the delivery of both this Strategy and the national Air Quality Strategy. This will primarily be through the LAQM regime as set out in this Strategy. Through this commitment, the Council will work towards achieving the national air quality objectives and will:
    - Strive to ensure that areas currently below the air quality objectives remain so and where possible seek to further improve air quality in these areas:
        - Continue to monitor local air quality across the borough.
        - Produce Annual Status Reports which are published on the air quality website[5].
        - Make air quality monitoring data available on the air quality website[6].
        - Regularly review monitoring sites to make sure they are relevant to exposure.
- Air quality is a public health issue therefore, collaboration with the Public Heath team and the Director of Public Health at every stage of air quality related matters is encouraged.

5 https://www.cheshireeast.gov.uk/business/environmental_health/local_air_quality/review_and_assessment/review_and_assessment.aspx

6 https://www.cheshireeast.gov.uk/business/environmental_health/local_air_quality/what_is_pollution_like_near_me/air-pollution-monitoring.aspx

- Continue to support effective cross-departmental collaboration through the Council's Air Quality Steering Group (AQSG). The terms of reference for this group are to discuss the wider issues of LAQM, review the AQAP and ensure that air quality is effectively considered within all relevant policy areas. Through more effective cross-departmental collaboration, Cheshire East will strive to ensure that Council actions do not have a detrimental effect on air quality.
- Actively engage and work with relevant partners such as highways, schools, hospitals, transport operators, local businesses, industry, communications, and media to achieve the necessary improvements in air quality.
- Participate in local and regional networks to pursue improved air quality and the consistent implementation of Local Air Quality Management both locally and nationally.
- Regularly review the AQAP to ensure the measures will achieve relevant improvements in air quality. Reporting any barriers to the AQSG.
- Reduce pollutant emissions (including greenhouse gases) from Cheshire East Council's own estate and vehicle fleets.

### 4.2. Development Management and Spatial Planning

- Ensure that air quality is considered as a material planning consideration within the Development Management process. To assist with this process the Council implement relevant Best Practice Guides and Supplementary Planning Documentation to assist developers in understanding what is expected to ensure air quality is appropriately considered.
- Require a suitable Environmental Impact Assessment to accurately assess the impact proposed developments will have on local air quality. Guidance on when this will be appropriate will be set out in the Environmental Protection Supplementary Planning Document and Best Practice Guidance.
- Where a deterioration in air quality is predicted due to any development, suitable mitigation measures will be applied. Examples include installation of electric vehicle infrastructure, low NOx boilers and travel plans.
- Ensure air quality is properly considered within all relevant planning policy processes.
- Where appropriate, developers should contribute to meeting the aims of the various actions set out in the AQAP in a manner proportionate with residual emissions. Examples of this could be through a formula based on proxy criteria such as the size of the development or car parking spaces.

### 4.3. Transport and Non-Road Mobile Machinery (NRMM)

- Road transportation is the primary source of air pollutants. As such, appropriate measures must be applied to significantly reduce emissions due to road traffic, including brake and tyre wear.
- Ensure that systems are put in place to make sure licensed taxi vehicles comply with emission standards.
- Ensure education and awareness of vehicle idling is delivered through the anti-idling campaign.
- Ensure this strategy is incorporated into the LTP, in line with guidance published by the government.
- Ensure that there is a consistent policy approach, which reduces the need to travel and rely on use of private vehicles and more specifically reduces the use of vehicles for short journeys and supports public transport and active travel.
- Work with the relevant Highways Authorities to improve air quality within AQMAs, whilst ensuring air quality does not deteriorate in other areas across the road network.
- Engage with freight operators and organisations to establish appropriate freight routes, delivery routines and driver practices to minimise congestion and pollution.
- Ensure there is a regular exchange of information between transport planners and air quality professionals to include air quality and traffic information and details of any new road proposals.
- Support work to reduce emissions from the Council's vehicle fleet including contractors and looking to the future, suppliers.
- Promote and support opportunities for active travel (i.e., walking and cycling).
- Continue to liaise with Manchester Airport to ensure air quality within Cheshire East is considered and does not deteriorate because of operations at the airport.
- Promote the use of cleaner NRMM as part of construction and environment management plans for development.

### 4.4. Climate Change and Energy Management

- Work to support climate change initiatives ongoing in Cheshire East and embed air quality objectives into the delivery of Carbon Neutrality Plans.

- Prioritise climate change initiatives and actions, which are mutually beneficial to air quality, especially on reducing pollution from transport and heating sources.
- Support the promotion of energy efficiency measures across the borough including the Council's estate.

### 4.5. Public Health, Education and Awareness

- Increase public understanding of both indoor and outdoor air quality and the associated health effects.
- Work with Public Health to investigate links between poor air quality (i.e., in AQMAs) and health, and by doing so help to develop the Cheshire East Joint Strategic Needs Assessment.
- Keep the public informed of work relating to LAQM, primarily through the Council's website and any other suitable media.
- Encourage the local community to become involved in improving air quality and take actions to reduce their emission contributions to local air quality.
- Use interactive packages to engage and support schools to raise awareness of air quality and associated local and national campaigns.
- Use of communications and other relevant material for education, communications, and campaigns.
- Liaise and work with external partners such as Defra to ensure air quality improvements are driven forward and use of the UK-Air website[7] publicised.

### 4.6. Domestic Burning and Smoke Control Areas

- Continue the communication and education campaign to enable the public to make informed decisions with regards to domestic solid fuel burning.
- Enforce solid fuel regulations by ensuring that fuel being sold for domestic purposes has the "Ready to Burn" logo. Ensure that retailers are not selling traditional house coal and are only selling smokeless coal, for indoor domestic burning.
- Improve awareness and education relating to smoke control areas.
- Keep the boundaries of existing Smoke Control Areas under review, especially if development has taken place outside of the boundaries.
- Enforce restrictions which apply within smoke control areas.

[7] https://uk-air.defra.gov.uk/

- Work with the Environmental Protection and Trading Standard teams to support domestic burning and smoke control area work.
- Provide advice on the installation of alternative heating solutions.

### 4.7. Industrial, Commercial and Domestic Sources

- Work closely with the Environment Agency where any ‘Part A’ installation is likely to detrimentally affect air quality.
- Provide advice on the control of air polluting emissions to ensure that all relevant legislation is enforced for the control of emissions from industrial sources.
- Regulate currently granted environmental permits and ensure that any new processes requiring an environmental permit are identified and brought into the regime.

### 4.8. Agriculture

- Encourage farmers to reduce ammonia emissions by following the Code of Good Agricultural Practice for Reducing Ammonia Emissions, particularly when reviewing planning applications and dealing with service requests.

### 4.9. Indoor Air Quality

- Support internal and external partners with indoor air quality education and awareness to help raise the profile.

### 4.10. Fund Air Quality

- To commit, on a long-term basis, officers to drive forward air quality improvements within the borough.
- Maximise funding opportunities for air quality improvements from external partners, developers and through pursuing government grants.

### 4.11. Monitoring the Effectiveness of this Strategy

- Robustly monitor the progress of the Council’s actions in implementing this Strategy through reporting to the Air Quality Steering Group.
- Review the AQS as and when required, but as a minimum every 5 years.

# 5. Monitoring the Success of the Strategy

The effectiveness of this Strategy will be monitored to ensure the aims and objectives are being progressed. Indicators can be used to monitor the effectiveness of the Strategy, and these should be clear and transparent. The indicators within the AQS are reported on annually and presented to the Air Quality Steering Group.

Actions to improve air quality need to be implemented by a range of internal and external stakeholders. Communication and collaboration are the key to ensuring measures arising from this Strategy are implemented. To assist with this, input from the stakeholders identified in this report will be required to ensure implementation of this Strategy remains an active and on-going process. Specific actions will be implemented through the AQAP. Any actions implemented will undergo further scrutiny in terms of cost effectiveness and evaluation of their impact on other policy areas, which is required as part of the action planning process.

There are several possible indicators listed below to use in monitoring the effectiveness of this Strategy, which will provide direct evidence for improving air quality, both within and outside of AQMAs. In addition, other policy actions, such as assessing the impacts of new developments (roads, residential, commercial, industrial etc.) and increasing public awareness have been included. This Strategy will be reviewed on a 5-yearly basis.

## 5.1. Air Quality Monitoring

Cheshire East has a network of $NO_2$ monitoring sites and a RTA located at Disley. The RTA measures $NO_2$ and PM. The measurements obtained will be used to directly report on trends in air pollution concentrations. The measurements will provide a long-term indication of overall air quality across Cheshire East and will help to identify areas which maybe exceeding the objectives. New monitoring locations will be considered by using local knowledge, requests from members of the public and the Development Management process to map new development.

## 5.2. Number of AQMAs

The number of AQMAs will help keep track of not only improvements in areas where issues have been identified but will also track any area(s) which experience a deterioration in air quality.

## 5.3. Assessing New developments

To ensure that new developments do not cause significant deterioration of air quality, there is an indicator to ensure all relevant new developments (roads, residential, commercial, industrial etc.) have an air quality impact assessment submitted as part of the planning application stage.

### 5.4. Raising public awareness

Public awareness is important to ensure individuals and businesses have the relevant information to be able to make informed decisions regarding the impact of their actions on air quality. This will also provide them with information on the role they can play to improve air quality. As such, air quality education will be promoted to schools, resident groups, Town/Parish Councils, businesses, and the entire borough. This will be done through awareness days, using communication assets, workshops, consultations, social media and at meetings to ensure the right information is made available.

### 5.5. Improve public transport

Improving local public transport will help reduce single/individual car usage and thereby improve air quality.

**Table 5.1. Indicators for inclusion in the Strategy**

| | Description | Monitoring Frequency | Target |
|---|---|---|---|
| 1 | Monitoring air quality | Annually | Achievement of the UK air quality objectives |
| 2 | Number of AQMAs | Annually | Reduction of AQMAs |
| 3 | Assessment of Road Schemes | Annually | Undertake air quality assessments for 100% of relevant road schemes |
| 4 | Assessment of planning applications | Annually | 100% of relevant planning applications accompanied by Environmental Impact Assessments covering air quality<br><br>96% or above of relevant planning applications responded to within the consultation period |
| 5 | Assessment of industrial processes | Annually | 100% of applications for Environmental Permits are assessed for Air Quality implications<br><br>96% or above of programmed inspections carried out to ensure compliance with Permit conditions |
| 6 | Promotion, education, and awareness of Air Quality | Annually | Deliver a minimum of five school education workshops / residents' group presentations / Town or Parish Council presentations<br><br>Minimum of five national awareness campaigns supported |

# 6 Conclusions

The ongoing development of this Strategy for Cheshire East signifies recognition that improving local air quality is the responsibility of a wide range of stakeholders and professions. Although Environmental Protection professionals are tasked with the monitoring and assessment of air quality, the actions and measures necessary to improve air quality remains with a wider range of professionals and stakeholders. These actions will be coordinated and prioritised by Environmental Protection professionals who are also tasked with reporting on the effects of the implemented measures to the Government.

Although future improvements in local air quality are predicted due to technological advances in vehicle engines and improved fuels, there is currently some doubt as to their efficacy. Therefore, there is still a need to reduce the increasing reliance on private motor vehicle use and to provide access to improved public transport services or other sustainable means of travel. Traffic accounts for the main source of pollutant emissions across Cheshire East and is responsible for all the declared AQMAs. As such, the links with the Council's LTP is fundamental to improving air quality across the borough.

Through the implementation of this Strategy, emissions of pollutants across the borough should reduce, resulting in improvements in air quality. This will give rise to several benefits including improvements in the health of the population, improvements to the environment and reduced healthcare costs.

# 7 Glossary

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| AQAP | Air Quality Action Plan |
| AQMA | Air Quality Management Area |
| AQS | Air Quality Strategy |
| CEC | Cheshire East Council |
| $CO_2$ | Carbon dioxide |
| LDF | Local Development Framework |
| LTP | Local Transport Plan |
| $NO_2$ | Nitrogen dioxide |
| NOx | Nitrogen oxides |
| PM | Particulate Matter |
| $PM_{2.5}$ | Particulate Matter of less than 2.5µm in diameter |
| $PM_{10}$ | Particulate Matter of less than 10µm in diameter |

# Appendix 1 Air Quality Objectives

A1.1 The table below presents the air quality objectives relevant for Cheshire East under the Local Air Quality Management Framework. The Air Quality (England) Regulations 2000[8] (2002 as amended)[9].

**Table A1.1 Air Quality Objectives included in Regulations for the purpose of Local Air Quality Management in England**

| Pollutant | Objective | Averaging Period |
|---|---|---|
| Benzene | 16.25 $\mu g/m^3$ | Running annual mean |
| Benzene | 5.00 $\mu g/m^3$ | Annual mean |
| 1,3-Butadiene | 2.25 $\mu g/m^3$ | Running annual mean |
| Carbon monoxide | 10.0 $mg/m^3$ | Maximum daily running 8-hour mean |
| Lead | 0.5 $\mu g/m^3$<br>0.25 $\mu g/m^3$ | Annual mean<br>Annual mean |
| Nitrogen dioxide ($NO_2$) | 200 $\mu g/m^3$ not to be exceeded more than 18 times a year<br>40 $\mu g/m^3$ | 1-hour mean<br>Annual mean |
| Particles ($PM_{10}$) (gravimetric) | 50 $\mu g/m^3$, not to be exceeded more than 35 times a year<br>40 $\mu g/m^3$ | 24-hour mean<br>Annual mean |
| Sulphur dioxide ($SO_2$) | 350 $\mu g/m^3$, not to be exceeded more than 24 times a year<br>125 $\mu g/m^3$, not to be exceeded more than 3 times a year<br>266 $\mu g/m^3$, not to be exceeded more than 35 times a year | 1-hour mean<br>24-hour mean<br>15-minute mean |

[8] https://www.legislation.gov.uk/uksi/2000/928/contents/made

[9] https://www.legislation.gov.uk/uksi/2002/3043/contents/made

A1.2 The table below presents The Environmental Targets (Fine Particulate Matter) (England) Regulations 2023[10], which are the responsibility of the Secretary of State.

**Table A1.2 Environmental Act $PM_{2.5}$**

| Pollutant | Objective | Target year |
|---|---|---|
| $PM_{2.5}$ annual mean concentration | Interim target: 12 µg/$m^3$ | 2028 |
| $PM_{2.5}$ annual mean concentration | Legally binding target: 10µg/$m^3$ | 2040 |
| $PM_{2.5}$ population exposure | Interim target: 22% reduction in exposure compared to 2018 | 2028 |
| $PM_{2.5}$ population exposure | Legally binding target: 35% reduction in exposure compared to 2018 | 2040 |

[10] https://www.legislation.gov.uk/uksi/2023/96/contents/made

# Appendix 2 Health Effects of Air Pollutants

A2.1 The table below summarises the main health and some environmental impacts of high concentrations of the national Air Quality Strategy pollutants.

| Specific pollutant | Potential effect on health and the environment |
|---|---|
| **Particulate Matter ($PM_{10}$ and $PM_{2.5}$)** | Both short-term and long-term exposure to ambient levels of PM are consistently associated with respiratory and cardiovascular illness and mortality as well as other ill-health effects. The associations are believed to be causal. It is not currently possible to discern a threshold concentration below which there are no effects on the whole population's health. $PM_{10}$ refers to the mass in micrograms per cubic metre of particles with a diameter equal to or less than 10 micrometres, that are likely to be inhaled into the thoracic region of the respiratory tract.<br><br>Recent reviews by the World Health Organisation (WHO) and Committee on the Medical Effects of Air Pollutants (COMEAP) have suggested exposure to a fine particles ($PM_{2.5}$), which typically make up around two thirds of $PM_{10}$ emissions and concentrations) give a stronger association with the observed ill-health effects, but also warn that there is evidence that the coarse fraction between ($PM_{10}$-$PM_{2.5}$) also has some effects on health. |
| **Nitrogen oxides ($NO_x$ including $NO_2$)** | Nitrogen dioxide ($NO_2$) is associated with adverse effects on human health. At high levels, $NO_2$ causes inflammation of the airways. Long-term exposure may affect lung function and respiratory symptoms. $NO_2$ also enhances the response to allergens in sensitive individuals.<br><br>High levels of $NO_X$ can have an adverse effect on vegetation, including leaf or needle damage and reduced growth. Deposition of pollutants derived from $NO_X$ emissions contribute to acidification and/or eutrophication of sensitive habitats leading to loss of biodiversity, often at locations far removed from the original emissions. $NO_X$ also contributes to the formation of secondary particles and ground level ozone, both of which are associated with ill-health effects. |
| **Sulphur dioxide ($SO_2$)** | Causes constriction of the airways of the lung. This effect is particularly likely to occur in people suffering from asthma and chronic lung disease. Precursor to secondary PM and therefore contributes to the ill-health effects caused by $PM_{10}$ and $PM_{2.5}$. Potential damage to ecosystems at high levels, including degradation of chlorophyll, |

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|---|---|
| | reduced photosynthesis, raised respiration rates and changes in protein metabolism.<br><br>Deposition of pollution derived from $SO_2$ emissions contribute to acidification of soils and waters and subsequent loss of biodiversity, often at locations far removed from the original emission. |
| **Benzene** | Benzene is a recognised human carcinogen which attacks the genetic material and, as such, no absolutely safe level can be specified in ambient air. Studies in workers exposed to high levels have shown an excessive risk of leukaemia. |
| **1,3-butadiene** | 1,3-butadiene is also a recognised genotoxic human carcinogen, as such, no absolutely safe level can be specified in ambient air. The health effect of most concern is the induction of cancer of the lymphoid system and blood–forming tissues, lymphoma, and leukaemia. |
| **Lead (Pb)** | Exposure to high levels in air may result in toxic biochemical effects which have adverse effects on the kidneys, gastrointestinal tract, the joints, and reproductive systems, and acute or chronic damage to the nervous system. Affects intellectual development in young children. |

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