EssexAir

Essex Air Quality Strategy

July 2025

This strategy has been developed collaboratively by representatives from the following councils in Essex:

Basildon Council

Braintree District Council

Brentwood Borough Council

Castle Point Borough Council

Chelmsford City Council

Colchester City Council

Epping Forest District Council

Essex County Council

Harlow Council
Working together for Harlow

Maldon District Council

Rochford District Council

Southend-on-Sea City Council

Tendring District Council

thurrock.gov.uk

Uttlesford District Council

The strategy is also supported by the following anchor partner organisations:

NHS
The Princess Alexandra Hospital
NHS Trust

NHS
Hertfordshire and West Essex
Integrated Care Board

NHS
Mid and South Essex
NHS Foundation Trust

NHS
Suffolk and North East Essex
Integrated Care Board

a.r.u. Anglia Ruskin University

University of Essex

Essex County Fire & Rescue Service

Essex Police
Protecting and serving Essex

Contents

The Essex Air Quality Strategy has been jointly developed by all of the district, borough and city councils in Essex, as well as Essex County Council and the two unitary councils, Southend and Thurrock. We work together as part of the Essex Air Quality Consortium, under the banner of EssexAir, to improve air quality.

While we acknowledge the proposals for local government reorganisation in Essex, regardless of the potential future make-up of local government in Essex, there remains significant support for a new Essex Air Quality Strategy. It is felt there will still be a need for local authorities in Essex to work collaboratively on the subject of air quality to ensure maximum impact and make best use of the collective resources available.

A number of the councils already have local air quality action plans or strategies. The new Essex Air Quality Strategy aims to complement these and provide an overarching strategy for the whole county. The local air quality action plans and strategies are available in the local authorities section of the EssexAir **website.**

This summary document is intended for all audiences. It gives a high level summary of the reasons why action is needed, what is already being done to improve air quality in Essex and the actions we propose to take to further improve air quality.

There are two further documents aligned to the Essex Air Quality Strategy:

1. **Supporting information:** provides background information, describes the current air quality situation in Essex and how air quality is expected to change in the future, and identifies potential opportunities to improve air quality. This document is intended for those who want to know about air quality in Essex in greater detail.
2. **Action plan:** outlines the actions we propose to take to improve air quality and how progress will be measured. The action plan will be a live document, which will be updated as needed.

All three documents are available online at:
www.essexair.org.uk/strategy

Through a public consultation from January to March 2025, we asked for feedback on a draft version of the Essex Air Quality Strategy. We have used this feedback to help us improve and finalise the strategy.

Foreword from Councillor John Spence

We all know about the importance of getting “fresh” air, however the quality of the air we breathe can impact our health, particularly for children, older people and those with existing health conditions such as asthma. As well as outdoor air quality in our towns, cities and villages, the quality of the air inside our homes, schools and workplaces is also very important because that is where we spend most of our time.

Air quality in Essex is gradually improving, but we must not be complacent. There are still areas where air pollution is potentially having a harmful effect on the health of people living, visiting and working in our county, often contributed to by road traffic emissions.

Managing local air quality is primarily the role of district, borough, city and unitary councils, but as air pollution crosses boundaries and we know road transport is one of the biggest contributors to poor air quality, Essex County Council also has a clear role to play. We are already working on a number of projects and initiatives to help tackle air pollution, reduce vehicle emissions and encourage everyone to think about the small steps they could take to make the air cleaner.

We cannot do it alone, however, and know we can achieve more when working together with others, so we are also working with other councils from across Essex through the Essex Air Quality Consortium, as well as other partner organisations.

This new Essex Air Quality Strategy, along with the accompanying Action Plan, identifies further steps we plan to take together to help improve air quality and the health of people in Essex.

Councillor John Spence CBE
Essex County Council’s Cabinet Member for Health, Social Care and Integration

Foreword from Professor Stephen Holgate

According to the World Health Organisation (WHO), air pollution is the greatest environmental risk to human health. Different from the coal-related pollution of the 1900s, air pollution today is in large part invisible. Yet, across the lifecourse, the toxic chemicals especially small particles created by human activities, pass through the lung into the blood stream to end up in every organ of the body. Here they interfere with organ development in the developing child, produce inflammation and accelerated aging of our organs as well as driving cancer causing DNA mutations.

In addition to multiple lung diseases, such as asthma and COPD, air pollution is responsible for 25% of all deaths from heart disease and 24% from stroke, is a major risk factor for dementia, and is a trigger for non-smoking lung cancer. To make things worse, those living in deprived conditions are not only exposed to higher levels of pollution, but receive the greatest adverse impact upon their health.

Currently, almost everyone in the UK breathes air with pollution levels in excess of the WHO's air quality guidelines. This means that relentless efforts are required by us all to continue to bring air pollution down by reducing emissions at source. Such efforts will reap high rewards in disease prevention, both for the current population and for generations to come.

No single organisation can do everything, but by working closely together to raise awareness, share information and reduce air pollution, councils across Essex can take positive action to improve the quality of the air people breathe.

Professor Sir Stephen T Holgate CBE, FMedSci
UK Research and Innovation (UKRI) Clean Air Champion and Special Advisor to the Royal College of Physicians on Air Quality

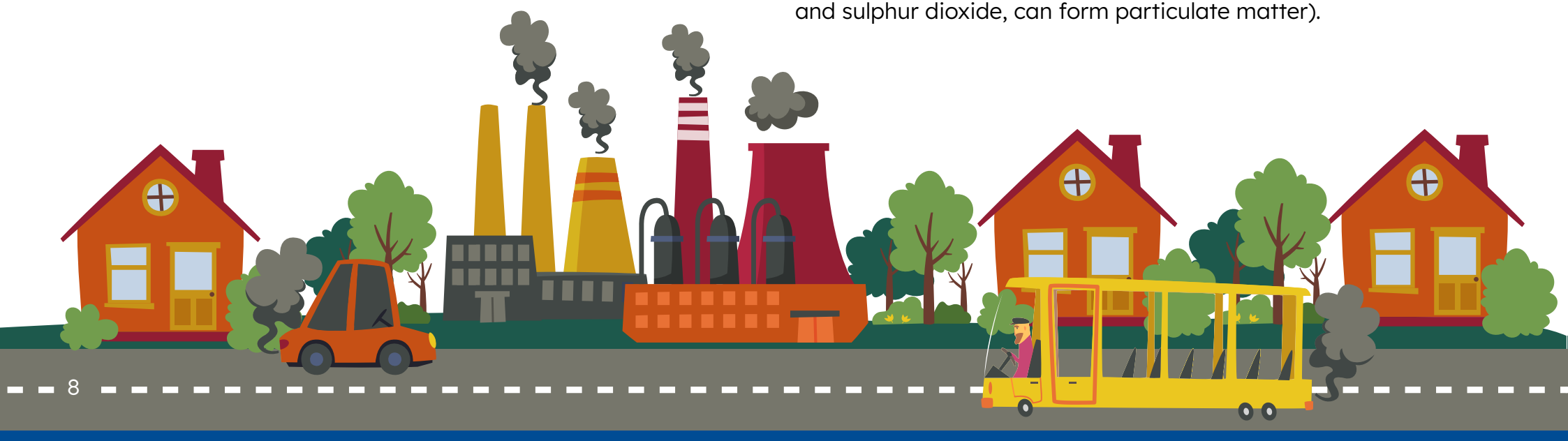
What is air pollution?

Air pollution is a complex mixture of particles and gases in the air that cause harm to people's health and the environment. There are two main elements of air pollution, noxious gases, and particulate matter.

Noxious gases are mainly produced by combustion of fossil fuels, for example in motor vehicles, heating systems, machinery, and industrial processes.

Particulate matter is produced by a range of sources, including the burning of wood and solid fuels, industrial processes, motor vehicles and natural sources, such as wildfires and sea salt. Particulate matter can be very small (many times smaller than the width of a human hair) and can pass through the lungs into the bloodstream, contributing to serious health problems throughout the body.

The UK government expects most action to be directed towards the three pollutants which have the majority of impact - fine particulate matter, nitrogen oxides and ammonia (which when it mixes with other gases in the atmosphere, such as nitrogen oxides and sulphur dioxide, can form particulate matter).



Factors affecting air quality in Essex

Levels of air pollutants vary across Essex and are influenced by nearby sources, as well as those transported by the wind from across the wider area and even mainland Europe. In urban areas, road traffic emissions make a major contribution, particularly next to busy roads, along with emissions from industry, construction and the burning of fuels in homes and businesses.

In rural areas, agricultural activities make a larger contribution, particularly to emissions of ammonia, which result in particulate matter being formed in the atmosphere.

Emissions from larger industrial and energy generating facilities, ports and airports also affect local air quality as a result of emissions from various on-site processes, the burning of fossil fuels and related transport movements.

Residential wood burning is a major source of small particulate matter ($PM_{2.5}$) emissions in Essex, like the rest of the UK. While homes in rural areas are more likely to have a wood burner, there are urban areas in Essex which have a large number of homes with wood burners.

In some locations of Essex, e.g. at bus stations, taxi ranks and at schools during pick up and drop off, idling vehicles can result in excess emissions and affect air quality.

Nitrogen dioxide (NO_2)

NO_2 is a gas that is produced along with nitric oxide (NO) by combustion processes, e.g., burning of fossil fuels. NO can react with other gases in the atmosphere to form NO_2, which is harmful to health. Together they are often referred to as oxides of nitrogen (NO_x).

49%

Road transport
(**70%** at the roadside)

15%

Industrial combustion

13%

Other transport

12%

Commercial, institutional, residential and agricultural combustion

Some of the sources of NO_x emissions in Essex

Exacerbates symptoms of those already suffering from lung or heart conditions, shortening lives and reducing quality of life

Short-term exposure to high concentrations of NO_2 can cause inflammation of the airways

Increases susceptibility to respiratory infections and allergens

Particulate Matter (PM)

Particulate matter is a generic term used to describe a complex mixture of solid and liquid particles of varying size, shape, and composition, i.e. everything in the air that isn't a gas.
Some particles are emitted directly (primary PM), while others are formed in the atmosphere through complex chemical reactions (secondary PM).

PM is classified according to size (i.e. particles less than 10 micrometres in diameter (PM_{10}) and less than 2.5 micrometres in diameter ($PM_{2.5}$)). This approach is based on the extent to which different sizes of particles penetrate into the respiratory system, and are absorbed by the lungs.

16%
Road transport

29%
Industrial combustion

32%
Commercial, institutional, residential and agricultural combustion

Some of the sources of primary PM emissions in Essex

The strongest evidence for effects on health are associated with **fine particles** (particles that are less than 2.5µm in diameter, which are referred to as $PM_{2.5}$).

These tiny particles from smoke, soot and dust can get into the **lungs** and **blood**.

PM can be transported around the body and get **embedded in organs**.

PM can have **short-term health impacts** over a single day when concentrations are very high, and **long-term impacts** from exposure to lower concentrations over a lifetime.

Effects can be greater for certain more vulnerable people, including **young children**, **the elderly**, and those **suffering from breathing problems** like asthma.

Why is this strategy needed?

Air pollution is the largest environmental risk to our health

In Essex, like the rest of the UK, air pollution is the largest environmental risk to public health. It reduces life expectancy by causing cardiovascular and respiratory diseases, and can intensify existing health conditions, such as asthma. In England, between 28,000 and 36,000 adult deaths are attributed to air pollution every year. In Essex, it is estimated that more than 1 in 20 deaths (5.5% in 2021) are attributable to particulate air pollution, which accounts for nearly 900 deaths per year.

As well as affecting individuals' quality of life, air pollution causes increased costs to society. The total cost of air pollution to the NHS and social care is estimated at between £1.6-5.6 billion for the period 2017 to 2025.

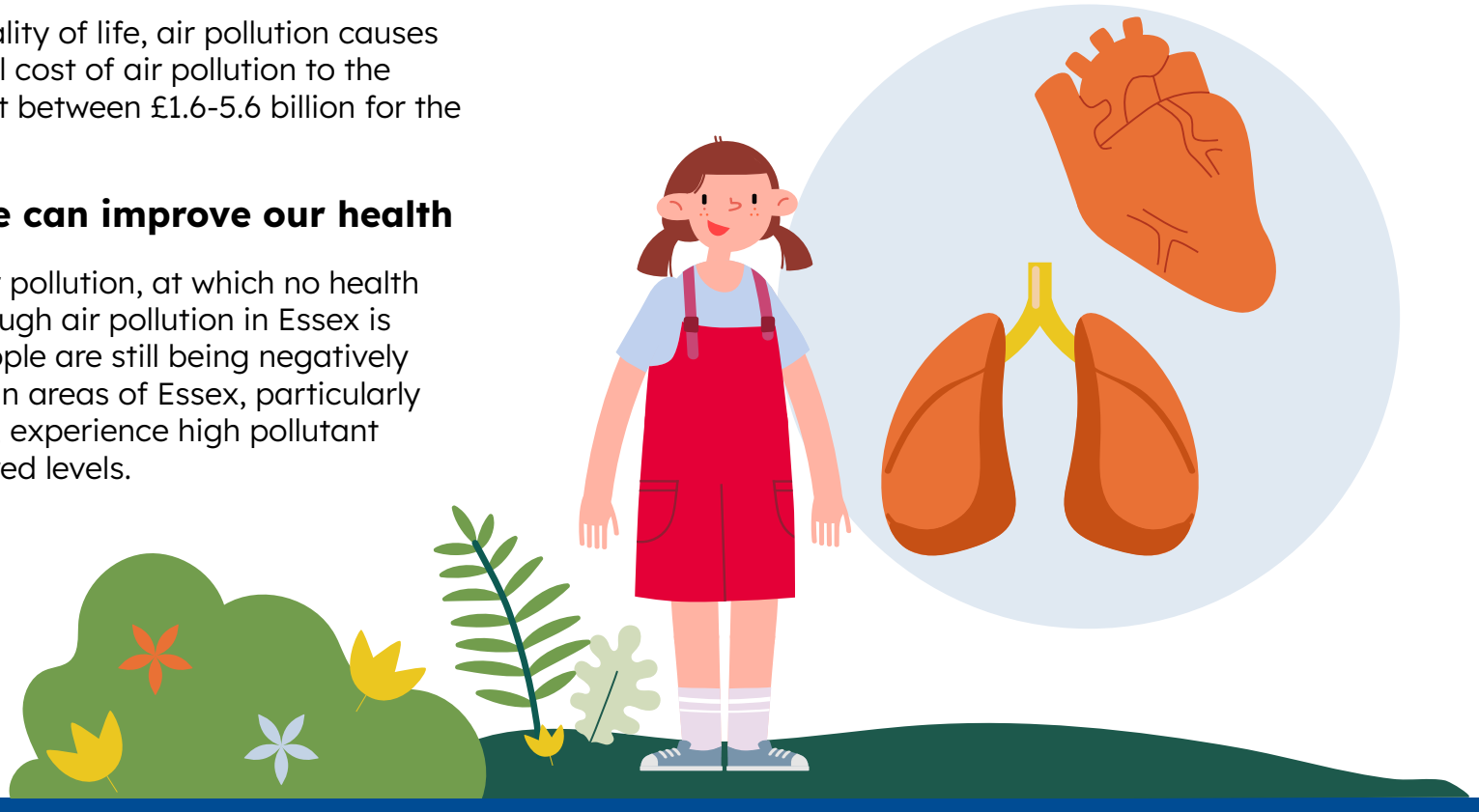
By improving air quality, we can improve our health

There is no known "safe" level of air pollution, at which no health harm occurs. This means that although air pollution in Essex is generally within required levels, people are still being negatively impacted. We also know that certain areas of Essex, particularly close to busy and congested roads, experience high pollutant concentrations which exceed required levels.

Research has shown that reductions in air pollution are associated with improved health outcomes. For example, air quality improvements in London have led to reduced childhood asthma hospital admissions.

Further reductions in air pollution will lead to decreases in a range of health conditions, including coronary heart disease, stroke, and lung cancer.

Ultimately, improving air quality in Essex will improve the health of our residents and those who visit and work in Essex.



Poor air quality affects vulnerable members of our society the most

The health impacts of air pollution are not experienced equally. Children, older people, and those with pre-existing health conditions are more likely to be affected. There is growing evidence that the health of pregnant women and their babies are also affected by air pollution. Poor air quality is more likely to be found in areas of deprivation, despite such areas often having lower levels of car ownership.

There is clear evidence that people with a low income are affected by air pollution as they are more likely to have existing medical conditions, live in areas with poorer outdoor and indoor environments, including the quality of air (for example, near to industry or busy roads), and have less access to jobs, healthy food, good housing and green spaces, which all contribute to poorer health. The disadvantages that come about as a result of lower income add up, putting deprived populations who are more likely to be in poor health at greater risk from air pollution and its adverse health impacts.

New developments and infrastructure have the potential to affect air quality

As in other parts of the UK, a substantial number of new houses are planned to be built in Essex in the coming years, which, together with other development, could negatively impact air quality, e.g. as a result of additional road traffic or heating emissions.

The importance of indoor air quality is not widely understood

The factors that affect indoor air quality and what action can be taken to improve it are not widely known. As most people spend considerable amounts of time in indoor spaces, the quality of indoor air is very important.

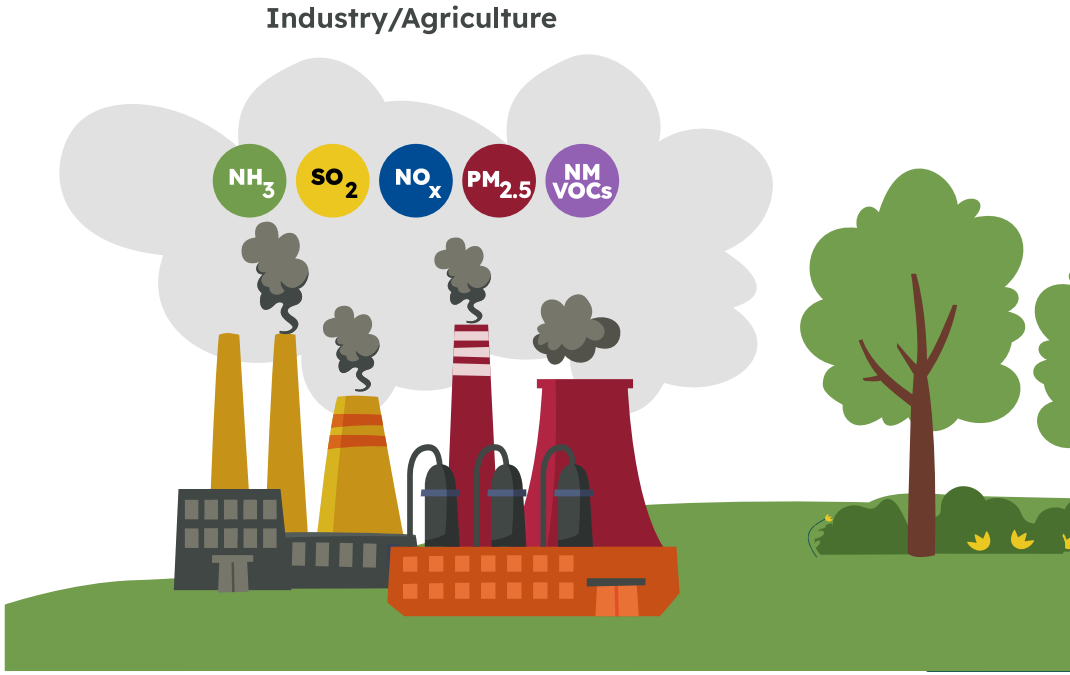
For example, homes heated by wood burners can have three times more harmful particles in the air than those without. In addition, approximately 50% of some harmful air pollutants emitted inside our homes are from the use of cosmetic, toiletry and other household products.

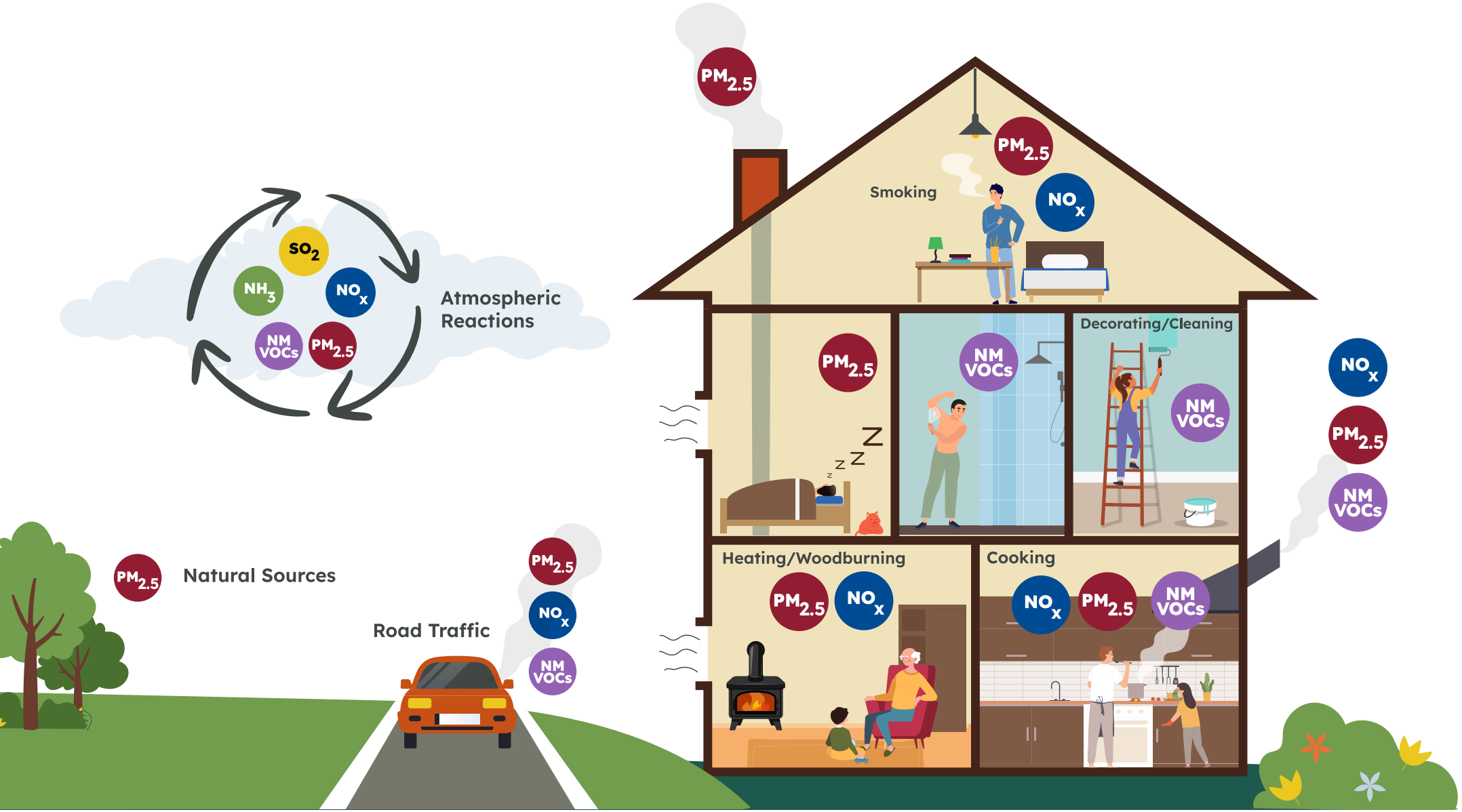
Key

NO_x	- Nitrogen Oxides (i.e. NO and NO_2)
$PM_{2.5}$	- Fine Particulate Matter
NMVOCs	- Non-Methane Volatile Organic Compounds
NH_3	- Ammonia
SO_2	- Sulphur Dioxide

PM is emitted directly, but is also formed in the atmosphere from reactions between other pollutants (for example, ammonia, VOCs, sulphur dioxide and NOx).

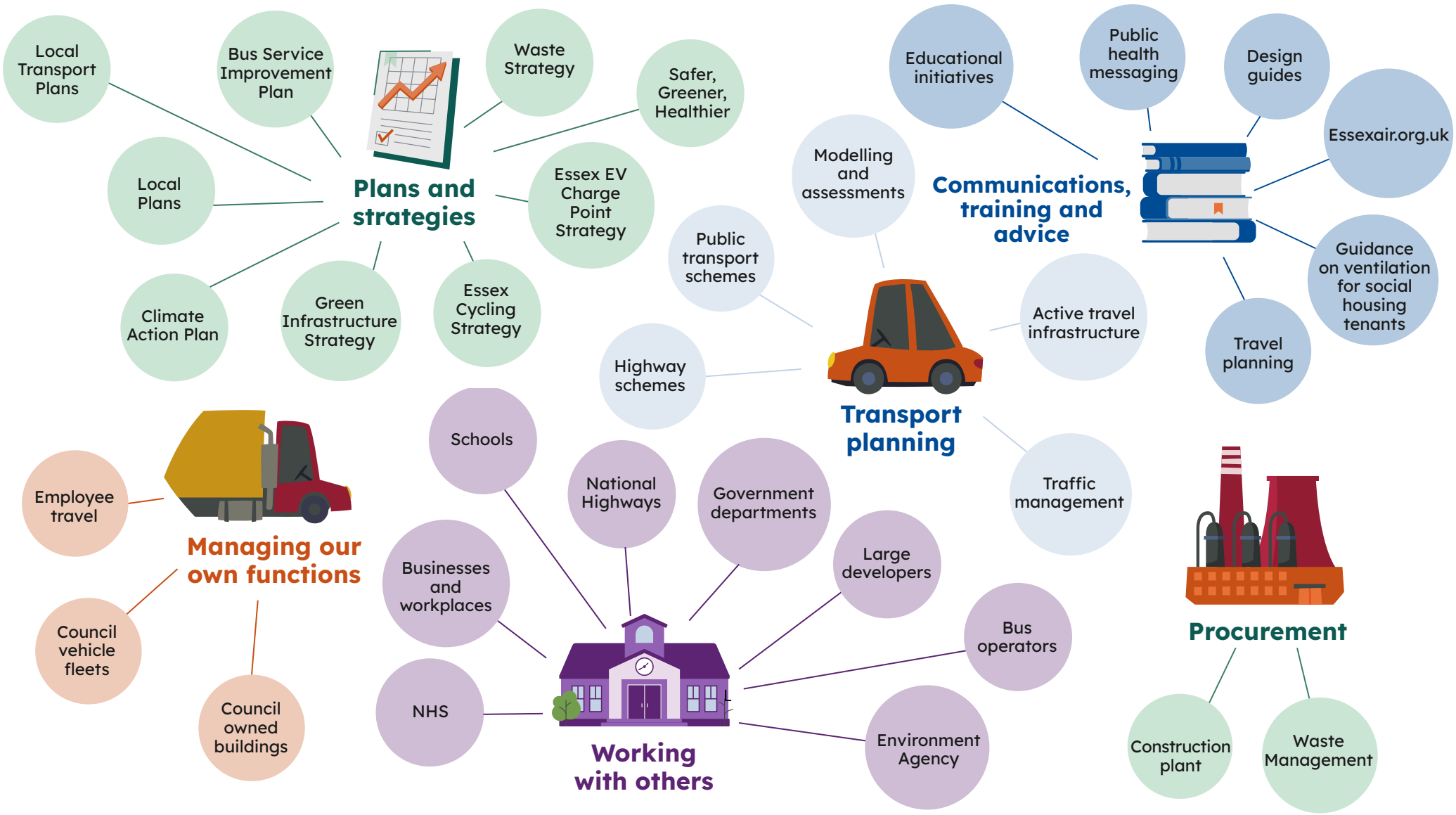
The majority of ammonia emissions come from agricultural sources. To improve air quality it is therefore important to reduce emissions from a wide range of sources, including farming.

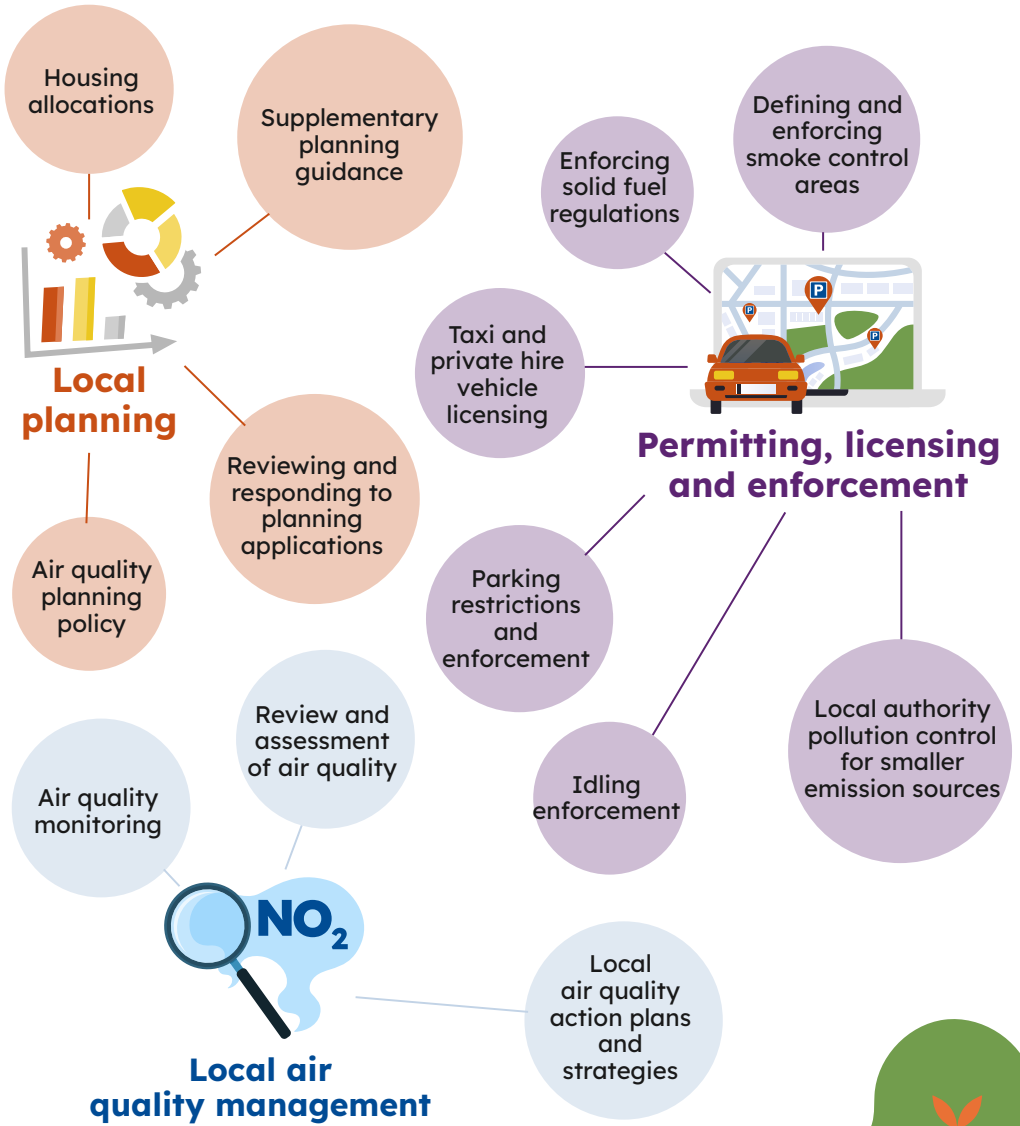




Some of many outdoor and indoor sources of air pollution which can affect us when outdoors or inside buildings

How can we influence air quality in Essex?




Housing allocations
Supplementary planning guidance
Local planning
Reviewing and responding to planning applications
Air quality planning policy
Enforcing solid fuel regulations
Defining and enforcing smoke control areas
Taxi and private hire vehicle licensing
Permitting, licensing and enforcement
Parking restrictions and enforcement
Idling enforcement
Local authority pollution control for smaller emission sources
Review and assessment of air quality
Air quality monitoring
NO2
Local air quality action plans and strategies
Local air quality management

Vision and Aims

Vision

By reducing exposure to poor air quality, the people of Essex enjoy improved health and fewer health inequalities.

Aims

1. Do what is within our power as local authorities to improve air quality in Essex
2. Limit the negative impacts of new developments on air quality in Essex and reduce exposure to air pollution
3. Work closely with a range of partners and stakeholders to improve air quality
4. Raise awareness about air quality in our communities and encourage behaviour change, including measures to improve indoor air quality

What is already being done to improve air quality?

There is much activity already underway in Essex. Further examples can be found in the Essex Air Quality Strategy supporting information document and on the EssexAir website.

- The redesign and expansion of the EssexAir website to help raise awareness of air quality issues in Essex and the actions people can take to reduce their emissions and exposure to air pollution.
- Monitoring of air quality near to selected primary schools in Essex to help raise awareness and encourage positive behavioural changes.
- The operation of an air quality and traffic sensor network in Colchester city centre to understand the causes of poor air quality in this area and identify potential solutions.
- Modelling of potential transport interventions aimed at improving air quality on Market Hill in Maldon.
- The Saffron Walden Clean Air project, which is piloting green modes of transport and encouraging active travel in the town, with the long-term aim of reducing car use for short in-town journeys.
- The Colchester CAReless project, which encourages drivers to switch off their engines when stationary to help improve air quality in the city and to reduce the amount of polluted air that people breathe inside their cars.
- The Colchester Home Burning campaign, which aims to raise awareness of the health impacts of pollution generated by home fires and log burners and help local 'burners' take positive action to reduce these risks.
- The Southend-on-Sea Cough, Cough, Engine Off campaign, which encourages drivers to switch off their engines when parked up and waiting. It draws attention to the health risks of continued idling and aims to reduce the numbers of idling vehicles in Southend-on-Sea.
- The Southend-on-Sea Clean Air for School's project, which focuses on schools in Southend-on-Sea that sit along the A13 and A127 or within Air Quality Management Areas. Air quality monitoring devices were installed at the schools to determine $PM_{2.5}$ and NO_2 levels. School air quality audits and assessments of specific school activities and interventions were undertaken. Further engagement was also undertaken with the schools on actions, intervention options and campaigns on air quality, reducing pollution exposure, and how to achieve safer, more active travel and modal shift.

Actions

Below is a summary of the overarching actions we are intending to take, or continue to take, to improve air quality in Essex. More detail about our proposed actions and the specific activities we plan to take can be found in the Essex Air Quality Strategy action plan.

1. We will encourage, enable and support the use of **public transport** and **active travel** modes, particularly for shorter trips or where they form a part of a longer journey in Essex
2. We will **limit or reduce the adverse impacts of developments and transport infrastructure** on air quality and seek to **minimise new exposure to air pollution**
3. We will **raise public awareness of air quality issues** in Essex and the impacts of poor air quality on human health and, by doing so, seek to encourage behavioural change
4. We will **identify, seek funding for, and implement measures** to reduce air pollutant emissions, particularly in areas of Essex with poor air quality
5. We will **lead by example** by reducing the impact of our activities on air quality

6. We will **engage with relevant organisations**, e.g. schools, the NHS, commercial premises, workplaces, National Highways, voluntary groups and local communities, to improve air quality

7. We will seek to **encourage, enable and support the uptake of low emission, alternatively fuelled and electric vehicles** in Essex

8. We will **work together** to monitor and assess air quality and seek to improve air quality monitoring in Essex in both urban and rural areas

9. We will look to install multifunctional **green infrastructure, such as trees, hedges, 'living walls' or 'green screens'** in appropriate locations in Essex with the aim of improving air quality

10. We will **regularly engage with each other, Essex Anchor Organisations and other relevant stakeholders** in Essex regarding air quality-related issues and seek to develop and implement Essex-wide air quality initiatives

Further details about these actions and how progress will be measured is included in the Essex Air Quality Strategy Action Plan.

Glossary

Terms	Definition
Action Plan	In the context of the Essex Air Quality Strategy, a document which outlines the actions which are proposed to be taken to improve air quality in Essex and how progress will be measured. The action plan will be a live document. which will be updated as needed.
Active travel	Methods or modes of transport which involve physical activity, such as walking, cycling, wheeling and scooting.
Air Quality Management Area	Local authorities in the UK are required to review air quality in their area and designate Air Quality Management Areas (AQMAs) in those areas where Air Quality Objectives, set by the UK government, are exceeded.
Air Quality Strategy	A document which sets out a strategic framework to improve air quality.
COPD	Chronic Obstructive Pulmonary Disease (COPD) is a common lung disease that makes it difficult to breathe.
Essex Air Quality Consortium	The Essex Air Quality Consortium is formed of the 12 district, borough, and city councils in Essex, as well as Essex County Council as the highway authority and the two unitary authorities in Greater Essex, Southend-on-Sea City Council and Thurrock Council.
EssexAir	EssexAir is a name which the Essex Air Quality Consortium uses when working together on various air quality projects or initiatives. EssexAir has its own visual identity (e.g. logo, colours, typefaces) which tell its brand story. There is an EssexAir website (www.essexair.org.uk), which is managed by the Essex Air Quality Consortium and includes useful information about air pollution, its impacts and what we can all do to help improve air quality in Essex.

Terms	Definition
Essex Air Quality Strategy	A document which gives a high level summary of the reasons why action is needed, what is already being done to improve air quality in Essex and the actions we propose to take to further improve air quality.
EV	Electric vehicles
Green Infrastructure	In the context of this strategy, green infrastructure refers to trees, hedges and green walls within streets and close by areas (e.g. parks and green spaces).
Health inequalities	Health inequalities are unfair and avoidable differences in health outcomes between groups of people. They include differences in how long people are likely to live, the age at which people get preventable diseases and the health conditions people experience. Health inequalities are caused by the conditions in which people are born, live, work, and grow.
Low emission vehicles	Vehicles with lower emissions than conventional internal combustion engine vehicles (e.g. hybrids).
NH_3	Ammonia (NH_3) is a gas which reacts with other chemicals in the air to form particulate matter. The main source of ammonia in the UK is agriculture.
NHS	National Health Service
NMVOCs	Non-methane volatile organic compounds (NMVOCs). These are found in many household products and can impact on indoor air quality. They can also contribute to concentrations of airborne particulate matter.
NO_2	Nitrogen dioxide (NO_2) is produced by combustion processes and also forms when nitric oxide (NO) reacts with other gases in the atmosphere.

Terms	Definition
NO_x	Oxides of nitrogen (NO_x) are produced by combustion processes and are comprised of both nitrogen dioxide and nitric oxide (see above).
Noxious gases	Gases which are harmful to people's health, and mainly produced by the combustion of fossil fuels.
PM	Particulate matter (PM) is everything in the air that is not a gas. It consists of a huge variety of chemical compounds and materials, some of which can be toxic. Due to the small size of many of the particles that form PM some of these toxins may enter the bloodstream and be transported around the body, lodging in the heart, brain and other organs.
$PM_{2.5}$	Particulate matter with a diameter of less than 2.5 micrometres.
PM_{10}	Particulate matter with a diameter of less than 10 micrometres.
SO_2	Sulphur dioxide (SO_2) is a corrosive, acidic gas which is predominantly produced from the combustion of coal or crude oil. Direct exposure to SO_2 is associated with asthma and chronic bronchitis, and can lead to irritation and constriction of the airways. SO_2 can also combine with nitrogen oxides and ammonia to form particulate matter (PM).

Terms	Definition
Supporting Information	In the context of this strategy, a document which provides background information, describes the current air quality situation in Essex and how air quality is expected to change in the future, and identifies potential opportunities to improve air quality.
Transport infrastructure	Transport infrastructure refers to the facilities designed to help people move from place to place. It includes things such as pavements, cycle lanes, bus stops, train stations, roads, and parking spaces.
UK	United Kingdom
WHO	World Health Organisation
WHO air quality guidelines	World Health Organisation (WHO) air quality guidelines are recommended levels for governments and policy makers to work towards based on the latest scientific understanding of the health effects of air pollution. Although the guidelines are neither standards nor legally binding, they are designed to offer guidance in reducing the health impacts of air pollution based on expert evaluation of current scientific evidence.

This information is issued by:
Essex County Council (on behalf of the Essex Air Quality Consortium)

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The information contained in this document can be translated and/or made available in alternative formats, on request.

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