# Scrutiny
Improving public services

# Air Quality
A Task and Finish Review
March 2019

**Place Services and Economic Growth
Policy and Scrutiny Committee**

Essex County Council

**Foreword by Councillor Ian Grundy, Chairman of the Place Services and Economic Growth Policy and Scrutiny Committee.**

As Chairman of the Place Services and Economic Growth Policy and Scrutiny Committee I am pleased to submit the following report and recommendations to Cabinet.

This paper represents the culmination of a significant and ambitious piece of member-led work. We have received evidence from authorities both in Essex and across the country and we have engaged with senior officers, cabinet members, charities, non-governmental organisations and universities. The wealth of evidence taken by the committee has been excellent and I'd like to extend my personal gratitude to all those who have contributed.

I would also like to extend that appreciation to my colleagues. Across three groups we've engaged with a wide range of contributors and looked outside of the 'usual suspects' to produce a truly collaborative report. We can be proud of the findings and really take ownership of the recommendations as a full committee. I am particularly grateful to my fellow Chairmen, Councillors Pond and Hillier. This was always going to be a complex and elaborate piece of work. Thank you for your persistence and diligence.

Collectively, we've learnt a great deal over the last few months. The enormity and urgency of the issue has been striking. While we elected to focus our investigation on three distinct areas (Planning policy, Public Health & Technology, and Highways and Transport.) it's clear that this is a topic that extends well beyond our purview as an upper tier local authority.

Tackling poor air quality in Essex will only be the result of effective partnership working with all tiers of government and non-governmental partners across the county. It is only in concert that we can even begin to map out a solution. With primary legislation around national environmental policy set for significant change over the next few years, the future of local responsibility for pollution is likely to be the subject of persistent debate. No matter the outcome, Essex County Council will always have a leadership role to play in ensuring a safer, healthier Essex for residents.

I hope that the recommendations set out in this piece of work go some way to building on the good work already taking place across Essex County Council, while also outlining a clear vision for a more cohesive way forward.

Thank you for your consideration,

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**BACKGROUND**

### 1.1. Motion to Full Council

In December 2017 the following motion was adopted by Full Council:

*'This Council notes that the Place Services and Economic Growth Policy and Scrutiny Committee is undertaking a review of air quality issues and asks that Committee to consider the following suggestions and make appropriate recommendations to the Cabinet Member, as part of the review:*

> *1. Adopt an overarching Council Air Quality Improvement Policy.*
>
> *2. Ensure that services provided or commissioned by the Council are conducted with proper regard to their effects on air quality, and that contractors abide by the provisions of the overarching policy.*
>
> *3. Subject to the successful introduction of (4.) below: Phase out the payment of expenses to those driving the most polluting vehicles, and enhance cycle and car-sharing mileage provision*
>
> *4. Encourage Her Majesty's Government to institute a scrappage scheme for the most polluting private and commercial vehicles.*
>
> *5. Ensure that the Council's comments on any Local Plan require public transport infrastructure, modal shift, and electric vehicle facilities be a central part of that Plan.*
>
> *6. Enter dialogue with Her Majesty's Government and Local Planning Authorities to ensure that reduction of air pollution is properly considered in planning determination.*
>
> *7. Support inter-urban and rural cycling and walking (including PROW) so as to provide safer off-road routes.*
>
> *8. For this County Council and its partners to go for low carbon options when buying its own vehicles'*

### 1.2. Full Committee Briefing and Task and Finish Membership

Following a briefing to the whole committee at the May Place Services and Economic Growth Policy and Scrutiny Committee it was agreed that the committee would embark on a piece of task and finish work. This would be split into three distinct strands of investigation:

- Public Health and Technology
- Highways & Transportation
- Planning

Membership of the three Committees was agreed as below:

| Public Health and Technology | Highways and Transportation | Planning |
|---|---|---|
| Cllr Ian Grundy (Chairman)<br>Cllr Julie Young<br>Cllr Wendy Schmitt<br>Cllr Tony Ball<br>Cllr Bob Massey | Cllr Chris Pond (Chairman)<br>Cllr David Kendall<br>Cllr Ron Pratt<br>Cllr Paul Honeywood | Cllr Stephen Hillier (Chairman)<br>Cllr Barry Aspinell<br>Cllr Terry Cutmore |

Evidence gathering took place between September and December 2018 with each committee conducting work separately and feeding into a central report. Recommendations were agreed at the meeting of the full committee held on the 17th January 2019.

## 1.3. Contributors

Members would like to extend their gratitude to officers, external partners and members of the public who contributed to this piece of work. These include:

| Name | Title | Organisation |
|---|---|---|
| Paul Brookes | Environmental Health Manager | Chelmsford City Council |
| Jason Torrance | Clean Air Cities Director | UK100 |
| Polly Billington | Chief Executive | UK100 |
| Cllr Clyde Loakes | Deputy Leader | Waltham Forest Borough Council |
| Tracy Farrell | Team Manager – Air Quality and Environmental Protection | Waltham Forest Borough Council |
| Amanda Parrott | Team Manager – Planning Policy, Regeneration and Economic Development | Basildon Borough Council |
| Matthew Winslow | Head of Regeneration and Economic Development (Strategic Planning and Housing Strategy) | Basildon Borough Council |
| Sarah Clark | Volunteer | Friends of the Earth |
| Dr Saruhan Mosler | Lecturer in Landscape architecture/planning | Writtle College |
| Richard Romang | Lecturer in Landscape architecture/planning | Writtle College |

| Mark Ash | Director of Waste and Environment | ECC |
|---|---|---|
| David Sprunt | Principal Transportation and Infrastructure Planner | ECC |
| Julian Sanchez | Commissioning Delivery Manager – Essex Walking Strategy | ECC |
| Kris Radley | Essex Cycling Strategy Leader | Essex Highways |
| John Meehan | Head of Sustainability & Resilience Waste and Environment | ECC |
| Graham Thomas | Head of Planning | ECC |
| Helen Thomas | Head of Passenger Transport. | ECC |

## 2. FULL COMMITTEE WORK

### 2.1. Initial Waste and Environment Briefing

On the 17th May 2018 members received a briefing from the Essex County Council (ECC) Waste and Environment team. The aim of this session was to outline current ECC policy on the subject area and discuss the local and national context for change.

Officers asserted that Essex is a large and complex county with differing environmental impacts in different areas. For example, West Essex lies in the wind shadow of London, a global City with significant air quality issues. The M25, M11, A12 and A13 are large roads generating poor quality air. Similarly Stansted Airport is a significant net contributor to poor quality air in the region. In addition, there are pockets of pollution in industrial areas, shipping ports, train stations, and some large farming complexes.

High levels of reported poor air quality tend to be focussed where residents are directly affected by nearby sources of pollution. . In most cases these are households close to major roads. Other sources of air pollution such as sulphur emissions from shipping or particulate emissions from farming practices whilst measured are not considered a major factor in impacting upon human health. Emissions from industrial processes are also measured (and reported to the Environment Agency) and districts and boroughs will be aware of these 'sources'. There are two main traffic generated pollutants where data is collected and there is a requirement of local authorities to implement reductions:

1. **NOx,** this is a generic term for the nitrogen oxides that are most relevant for air pollution, namely nitric oxide (NO) and nitrogen dioxide (NO2).
2. **Particulate Matter (PM10, PM2.5)** Particulate Matter is a non-gaseous air pollutant, made up of various different shapes and particle sizes.

$PM_{10}$ refers to the sizes of particles which incorporates all sizes of 10 microns or less, $PM_{2.5}$ incorporates all sizes of 2.5 microns or less.

Until relatively recently (2009) the major PM source was from industrial processes, however the promotion of diesel cars in favour of petrol (to reduce $CO_2$ levels) has seen an increase in levels of $PM_{2.5}$.

Members noted that it was the responsibility of districts/boroughs to measure and report pollution levels, as well as to declare Air Quality Management Areas (AQMAs) to DEFRA. In these circumstances it is expected that the districts/boroughs would work closely with ECC to determine a solution. Officers gave evidence around the relationship between ECC and district/borough partners. Essex Highways are in constant dialogue with the districts and boroughs, Highways England and a wide variety of other partners. Part of their remit is to reduce congestion and part of the rationale for this is to reduce pollution, particularly in built up areas.

The example provided was work that had recently taken place in partnership with Colchester and Saffron Walden local authorities to reduce traffic in city centres. In the case of Colchester, bus technology has been improved to reduced emissions. ECC announced in February 2018 that £1,072,500 was secured from The Department for Environment, Food and Rural Affairs' 'Clean Bus Technology Fund'. The money was secured through a joint bid with Colchester Borough Council, Rochford District Council and Southend-on-Sea Borough Council. It will be used to retrofit 60 Arriva and First buses in the Colchester and Rochford Air Quality Management Areas to Euro VI, which is the highest emissions standard. **Another bid for this funding is being prepared.**

Essex is one of just 20 local authorities in the country to have secured funding and is now looking to upgrade buses as soon as possible. Some of the first buses expected to benefit from the upgrades will be in Colchester where commercial and Park and Ride services will be improved. A number of bus services which run along the A127 corridor, where air quality issues have been identified, are also set to benefit from the funding.

In terms of work taking place within ECC to combat poor air quality, officers outlined a number of projects already completed or in the pipeline, as well as areas of standard practice. For example, services provided or commissioned by the Council are contracted with regard to their effects on air quality, and contractors are also expected to abide by the provisions of the overarching policy. Procurement and users of the corporate finance system (TCS) ask suppliers to adhere to the industry environmental quality standards (ISO14001 etc. or similar).

When it comes to lowering emissions for staff travel ECC has procedures in place which set out the most environmentally friendly way to travel during work in easily accessible online resources[1]. This includes information on provision for travel expenses for cycle mileage and car sharing. It was noted that more consideration

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[1] http://intranet.essex.gov.uk/Pages/Making_sustainable_travel_decisions.aspx

could be given to lowering car expenses on larger, more polluting cars. It would be difficult to penalise the "most polluting vehicle" as the size of the engine, the differing fuels etc. are still being debated in terms of which are the most polluting.

In terms of ensuring that air quality is properly considered as part of planning determinations and local planning, work currently takes place across several departments: the Environment team, the Sustainable Travel team and the Essex Highways teams. This work seeks to promote and create public transport infrastructure, modal shift, and electric vehicle facilities to be a central part of any Local Plan. The example provided to the committee was the adoption by Epping Forest District Council that all new developments include charging points for electric vehicles as standard.

Air quality can be a material consideration in the planning process for development proposals, particularly if the application may:

- conflict with proposals in an Air Quality Action Plan;
- lead to a deterioration in air quality as a direct result of the proposal;
- increase human exposure in areas of existing poor air quality.

The issue of proper and well-maintained cycling infrastructure was raised by members at the committee. Officers noted work currently being pursued by the sustainable travel, public rights of way and Active Essex teams to feed into a walking/cycling strategy. Also noted by the committee were a number of existing ECC schemes to promote the use of sustainable, active transport:
- The Bike loan scheme for ECC employees
- The Free Bike store of 30 bikes for use by ECC employees
- An annual Cycling Grant of c £100,000 to encourage cycling across Essex which is bid for by cycling and community groups
- The Cycling Ambassador Programme
- Consultation on Travel Plans for new developments
- The Bikeability scheme which improve the cycling skills of school children
- Promotion of Dockless bike schemes in Essex


Essex Highways have recently erected signage throughout the core Harlow cycling network to encourage modal shift uptake, but there is a recognition that many older cycleways need new signage and maintenance. Essex Highways have secured £1.2 million for the cycling network around the A127 in April 2018.

Officers also provided evidence that ECC are currently supporting the Garden Communities development which is likely to have some major impacts on improving air quality as ECC aims to meet a 60% target for sustainable travel use from these developments.

Officers were then invited to offer potential areas for improvement, including:

- Greater public/district engagement on the subject of air quality
- Solar panels on ECC buildings
- Air quality monitoring using street lighting management systems
- Electric charge points at park and ride hubs

- Electric charge points along the A127 corridor
- Community charge points in public spaces

## 2.2.   UK100

Members received evidence from UK100 around current Air Quality legislation and proposed national changes. UK100 is an organisation tasked with overseeing a network of local government leaders across England and Wales, seeking to devise and implement plans to improve the quality of air and clean, renewable energy. It is the only network for UK local authorities focused solely on climate and clean energy policy and they held a 'clean air summit'[2] in London in early 2018

Particularly of interest were proposed changes on a national level to current environmental policy. These included a greater emphasis on non-car related emissions such as agricultural pollution and wood burning stoves and a focus on prevention rather than reactive environmental measures. Also proposed is a reprioritisation, providing more responsibility and authority to upper tier local authorities over district/boroughs. The full Draft Environment (Governance and Principles) Bill 2018 can be found here.[3]

## 3.  TRIP TO WALTHAM FOREST

Members took part in a fact-finding trip to Waltham Forest. In 2013, all 18 outer London boroughs were given the opportunity to apply for funding from the Mayor of London's Mini Holland programme that had set aside £100million for cycling infrastructure improvements. Waltham Forest was one of just three boroughs (Enfield and Kingston being the others) selected to share the pot of money, with £30million earmarked for structural changes to the layout of roads and pathways in the borough.

The project outlined three core objectives from the outset, aiming to:

- Improve the borough's infrastructure and connectivity between villages to make it safer and more enjoyable for pedestrians, vehicles and cyclists to travel in the borough.
- Improve and create new public spaces to make the borough a more enjoyable place to live, and to encourage community interaction.
- Increase the number of people choosing to travel on foot, by bike and on public transport, in order to lessen congestion on the roads and improve air quality across the borough.

This has translated into:

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[2] https://www.uk100.org/campaigns/#clean-air
[3] https://www.gov.uk/government/publications/draft-environment-principles-and-governance-bill-2018

- The construction of 22km of segregated cycle lanes
- 43 modal filters to motor vehicles, and two part time road closures
- 104 improved pedestrian crossings, with 43 tiger crossings
- 15 new 'pocket parks'
- 660 new trees
- Speed limit reduction to 20mph in most residential roads
- 250 bike hangers (1532 spaces)
- 472 secure cycle spaces across 7 cycle hubs
- Cycle training for more than 5000 residents

The borough has designed active travel behavioural change and pedestrianisation into every element of the transition, with strategic road closures forming a central component of the transformation work. Roads that were previously congested have been redesigned to maximise pedestrian usage and encourage modal shift.

The pictures below show Orford Road before (left) and after (right) the transformation. Here, road closures between the hours of 7.30am and 10pm have led to almost complete pedestrianisation. Shops along this stretch of road, including restaurants, bars, antiques and grocery shops, have been granted access to strips of reclaimed road to create a more community driven environment.




The same transformation can be seen, perhaps more starkly, in another area of the borough, Francis Road. Before (left) the area was a parking hotspot for a local school run and became heavily congested during peak hours. Since the transformation (right) this has largely been ameliorated.

In terms of outcomes, there has been a significant impact on air pollution levels across the borough. Fig. 1 below shows relevant exposure rates in 2007 against rates in 2017 (Fig. 2). Here, the number of households in dangerously high areas of air pollution dropped from 58,000 to below 7000.

**Fig. 1**
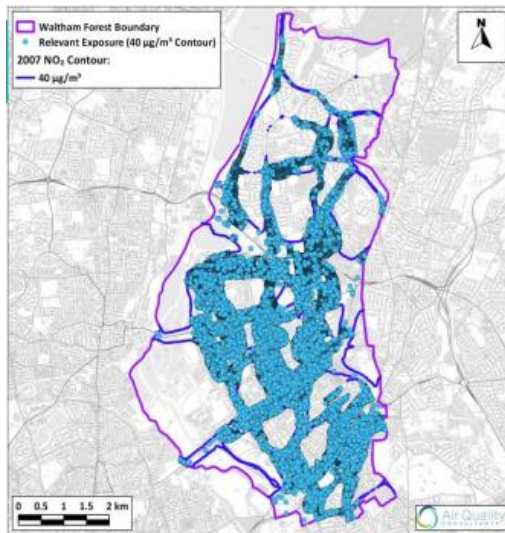


**Fig. 2**
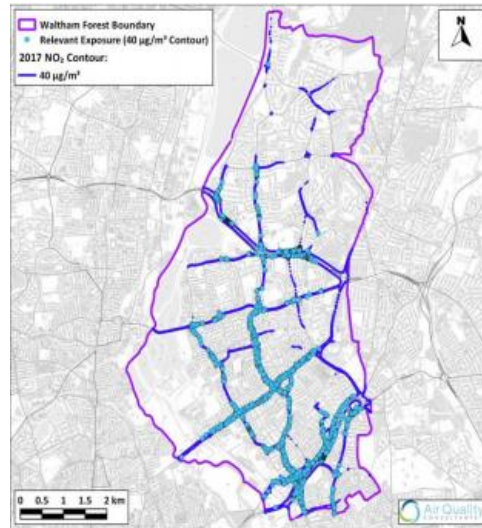


Annual resident surveys have shown that significantly more Waltham Forest residents are cycling. In 2016, 17% (approx. 46,100 people) said they cycle, compared to 12% (approx. 32,500 people) the year before – and two-thirds (73%) said they cycle at least once a week, up from 62% in 2015.



Off street cycle storage in all Waltham Forest residential streets. This was delivered as part of existing off-road parking schemes and charged to residents at reduced annual rates (approx. 1/3 of car parking charges). Each unit holds 6 cycles.

Members also learnt of the Borough's partnership with Bikeworks, a local not for profit social enterprise. Through this, the Council has expanded and relocated its successful bike recycling scheme to Leytonstone High Road, creating a community cycling hub for the whole borough. Opened in mid-June 2013, this offers access to refurbished bikes at low cost, high quality repairs, maintenance and build-a-bike workshops, as well as industry-accredited training and jobs in cycle maintenance for young people and ex-offenders. A programme to permit two-way cycling in one-way streets is also under way, aimed at making local travel by bike more direct and convenient. This has already dramatically improved links between often congested areas of the borough.

Cycling is now being mainstreamed in Council activities and across departments, such as regeneration, economic development, sport and leisure. In addition, cycling and walking have been an important element of the authority's public health strategy since 2010. The Council is encouraging staff and councillors to lead by example and undertake more business by bike. This has increased the profile of cycling amongst members, Council officers, the public and the local media.

In 2015, Waltham Forest launched their 'Design Guide' to provide guidance to partners and contractors conducting work in the Borough and outline a long-term vision and commitment to continuing improvements across the area. This can be found online [here.][4] Waltham Forest have made the ambitious target to facilitate lasting active travel behavioural change, with the aim of 100% of able residents cycling 10% of journeys. Residents were encouraged to take part in complementary events and activities to help them see the benefits of the programme to themselves and the borough. These included; cycling initiatives for schools and workplaces, HGV cycle safety training, improved facilities for cyclists and community events.

Peak active travel has also increased dramatically, with a number of successful walk to school schemes garnering significant participation from residents. The 'idling is fuelish'[5] campaign has also gained local recognition, with a large intake of 'air quality champions' for the borough. These are volunteers (often parents from specific school zones) tasked with combatting idling during peak hours.

## 4. TRIP TO WRITTLE COLLEGE

Members visited Writtle Agricultural College, Chelmsford, to discuss eco-friendly urban design, tactical urbanism, urban to rural transitions and green infrastructure. Of particular interest to members was the work of current graduate students on

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[4]      https://www.enjoywalthamforest.co.uk/wp-content/uploads/2015/01/Waltham-Forest-Mini-Holland-Design-Guide.pdf

[5]

https://walthamforest.gov.uk/sites/default/files/Vehicle%20idling%20action%20%20A5%202pp%20leaflet_v3%20%283%29.pdf

green urban planning and sustainable lived environments. Members also discussed the work that Writtle students had undertaken to evaluate the use of public and common space in Essex, particularly Chelmsford. This work highlighted emerging research and practise around the area of green infrastructure and 'tactical urbanism'. This is an umbrella term used to describe temporary, low cost interventions or changes to the built environment, usually in cities or other urban areas, intended to improve local neighbourhoods and encourage behavioural shifts towards more sustainable and environmentally friendly practices. This could take the form of temporary road closures, minor to major pedestrianisation and work with voluntary community partners to adapt current street usage for events, campaigns etc. This was of particular interest to members, who had witnessed how this had worked particularly well in Walthamstow.

Members were impressed with the level of insight demonstrated by both academic staff and students at Writtle College. It was agreed that greater partnership work with the university in future could help to drive forward work around air quality. It was noted that this could take the form of ECC sponsoring an ongoing PhD studentship, with a direct focus on delivering timely and directed research to ECC on the subject of air quality with either a broad or geographically specific area of focus.

## 5. PUBLIC HEALTH AND TECHNOLOGY

### 5.1. The Health Implications of Poor Air Quality

For its initial meeting, the Public Health and Technology subgroup were joined by internal ECC Public Health staff for a wide-ranging briefing on the fundamentals of air pollution and its impact on the body.

Members heard that Air pollution is the biggest environmental risk to health. Globally, nine out of ten people live in a city that does not comply with WHO air quality standards. Within the UK, poor outdoor air quality is linked to 50,000 deaths each year. The most vulnerable are children, the elderly, or those with pre-existing medical conditions. The design of urban and rural infrastructure, particularly road infrastructure, determines where air pollution is produced, and how it is dispersed.

It was noted that the three most prominent air pollutants with the greatest impact on public health were identified by witnesses as particulate matter, nitrogen oxides and sulphur dioxide. There are other pollutants that have health impacts but they are not as notable at a population level: These include carbon monoxide, ammonia, ozone and volatile organic compounds. Members also discussed the potential to explore domestic particulate pollutants such scented candles and scent diffusers, however, it was agreed that the focus of investigation should be on wider public health concerns.

## 5.2.  Particulate Matter

Particulate matter (PM) is small particulates predominately derived from the following:

- construction site and agricultural machinery.
- industrial processes.
- road transport exhaust, brake and tyre wear, road surface abrasion.
- rail transport.
- bonfires and fireworks.
- shipping.
- domestic solid fuel burning.

Particulate matter is graded on size : $PM_{10}$ covers all PM below 10 microns in diameter (a micron is a 1,000$^{th}$ of a millimetre), $PM_{2.5}$ refers to PM below 2.5 microns, and $PM_{0.1}$ which refers to PM below 0.1 microns.  $PM_{2.5}$ is small enough to get travel into the smallest lung spaces (the alveoli).  $PM_{0.1}$ is small enough to pass through the lungs and into the blood stream.  The strongest epidemiological evidence linking PM to poor health outcomes is for $PM_{2.5}$.

## 5.3.  Oxides of Nitrogen

Nitrogen Dioxide ($NO_2$) and nitric oxide (NO) are the principle oxides of nitrogen polluting the air.   Vehicle emissions contribute 80% to overall nitrogen dioxide levels which has been further compounded by the growth in diesel vehicles[6].  The major sources of $NO_2$ are:

- road transport exhaust.
- aircraft (esp. take off and landing).
- construction site machinery.
- industrial processes.
- rail transport.
- shipping.
- home and commercial heating.

## 5.4.  Sulphur Dioxide

Sulphur Dioxide ($SO_2$) is an acidic gas formed during the combustion and manufacturing processes which involve sulphur impurities. Examples of these include:

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[6]https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/633269/air-quality-plan-overview.pdf

- manufacture of paper.
- incineration of refuse.
- ore mining and fossil fuel combustion[7].

Power generation accounts for 46% of total $SO_2$ emissions.

Members of the Public Health and Technology subgroup discussed with public health officials both the direct and indirect effects of poor air quality.

The most prominent adverse effect of air pollution arise from its contribution to cardiovascular and respiratory diseases and the risks of developing lung cancer. This is particularly apparent with regards to residents with a pre-existing respiratory condition. This could include Chronic Obstructive Pulmonary Disease (COPD) or Asthma. Also at increased risk are children and the elderly.

## 5.5.   Local Data

The graph below (Fig 1), provided by the ECC Public Health team, shows the fraction of deaths attributable to long term exposure to man-made (anthropogenic) sources of air pollution. This shows that around 5-6% of all deaths in Essex is attributable to air pollution.

**Fig. 1: Fraction of deaths attributable to anthropogenic particulate air pollution  (PM$_{2.5}$) 2016**



Source: Public Health England

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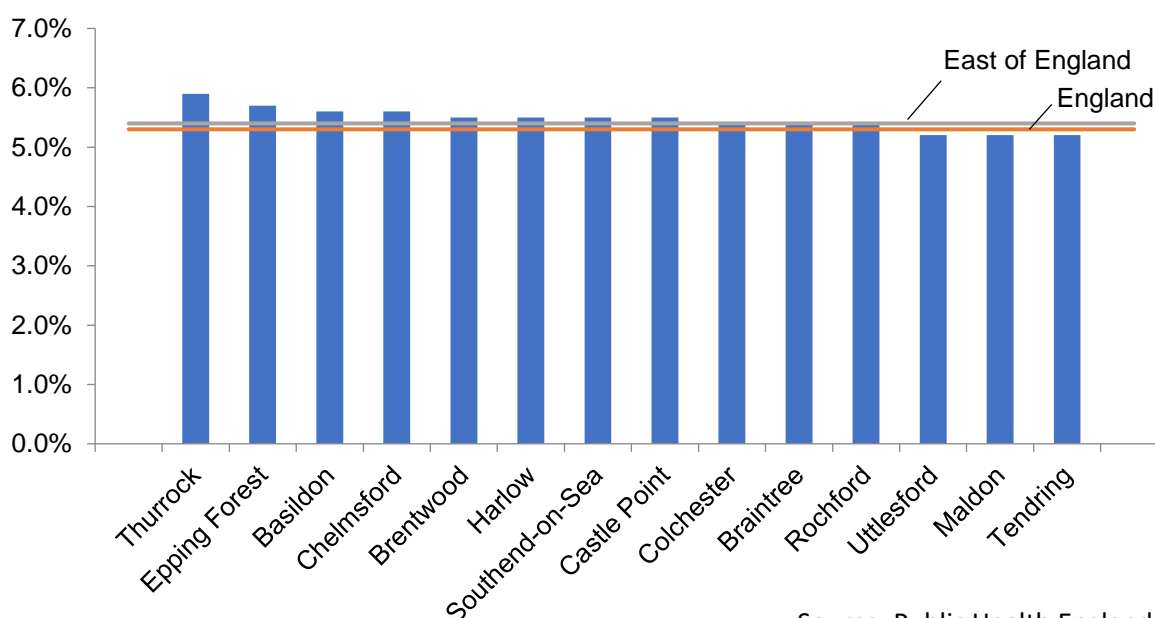
[7] http://emep.int/publ/reports/2004/assessment/Part1_025-056_02-Sulphur.pdf

Fig 2, below, provides evidence as to the magnitude of premature deaths (under 75 years of age) attributable to air pollution comparative to other major causes.

**Fig. 2: Premature deaths (under 75 years) per 100,000 population for major causes of death, 2014 to 2016**



Source: Public Health England
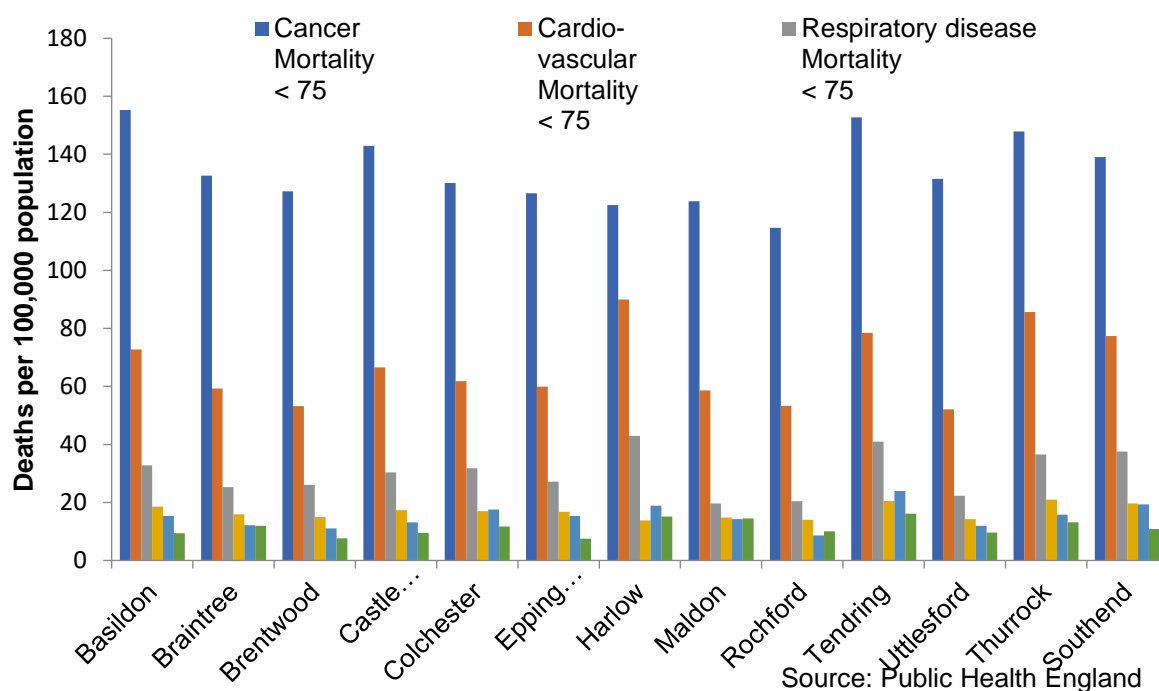
The chart shows that cancer, cardiovascular and respiratory disease account for more deaths than air pollution (though air pollution contributes to all of these causes). Air pollution is responsible for more premature deaths than other health priorities such as liver disease and suicide.

## 5.6.    Strategic Direction and Best Practice

Witnesses from the ECC Public Health team were then invited to contribute potential strategies for improving air quality, outline best practise evidence from other local authorities and provide guidance for the subgroup on future areas of investigation.

It was noted firstly that any action taken to improve air quality must be a collaborative exercise, undertaken in concert with key district and service partners, the communities they serve, local businesses, user groups, Voluntary Community Sector Organisations (VCSOs) and the health sector. It was suggested that a key area for potential action on the part of ECC would be coordination and leadership – working to establish a common approach to air quality across Essex through collaboration of the twelve districts, two unitaries and the county local authority. There are 23 air quality monitoring stations in the region of Essex.  Some areas of

Essex are better served by air quality monitors than other. Naturally without adequate monitoring poor air quality may not be detected.

Five key strategic areas were provided outlining the prerequisites for any successful ameliorative activity to reduce the negative health implications presented by poor air quality:

- Air quality monitoring
- Public awareness
- Cleaner transport
- Delivery freight and services.
- Developments and the built environment

It was suggested that these should be designed into ECC strategies at every level and in any policy area where there is the potential to make an impact. There should be a further focus on areas of high population density and on people who are most vulnerable (i.e. the elderly, the young and those with pre-existing heart or lung conditions).

The Public Health team then provided five case studies, outlining exemplary activity elsewhere – many of which are London based, but provide insight into how other local authorities are combatting the issue of air pollution in densely populated areas.

Key activity from these case studies is summarised below:

**Tower Hamlets Council**

- Planning applications are reviewed in areas of high pollution
- Replaced domestic boilers in council properties with less polluting models
- An interactive map released plotting walking and cycling routes to minimise exposure to air pollution
- Anti-Idling policy introduced fixed penalty for drivers idling their vehicles engines

**Greenwich Council**

- Established electric vehicle charge points across the borough

**Haringey Council**

- Green Screens: in collaboration with schools planted vegetative fences which act as an absorbent screen to pollutants from road traffic

**Camden, Islington and Enfield Councils**

- Freight Consolidation Service: rather than delivering individual items to their ultimate destination, suppliers deliver goods to a centralised freight consolidation facility where they are batched. This allows fewer onward deliveries.

**Cambridge Council**

- Clean taxis: commissioned low emission electric and hybrid licenced taxis; reduced fees for low emission taxis
- Coherent actions to reduce overall vehicle emissions: increased the number of Park and Ride spaces; controlled Parking Zones at foci of pollution.

Some good practise was also provided from within Essex. 'Essex Air'[8], for example, is a collaboration of local authorities in Essex that is concerned with monitoring and reporting on air quality. The primary output of this is a website dedicated to providing information to members of the public on the air pollution levels in their area. It was noted by members that, while this is a fantastic idea in theory, significant work needs to be done in order to ensure that the website is both accessible and comprehensive. In a similar vein, further feasibility work was suggested by members to explore the potential for a more direct alert system to at risk groups. This could be either a text or email alert system to warn those subscribed about high areas of particulate pollution in their area.

Colchester Borough Council were recognised as being particularly active in regards to air quality monitoring, having identified 4 Air Quality Management Areas (AQMAs) where air pollution levels were high enough to warrant ameliorative activity. They have also agreed a 5-year Air Quality Action Plan (AQAP) which includes:

- Promoting airTEXT: a service free to subscribers allowing them to receive air quality health alerts on pollution and particulates.   This is aimed at helping individuals most sensitive to poor air quality (those with heart or lung disease) to alter their activities to avoid the worse risks. (This was identified as a potential model for a county-wide system).
- A no vehicle idling policy
- Reduced bus emissions through use of cleaner fuels or retrofitting pollution reduction devices


## 5.7.   Relationship with district authorities

Members of the Public Health and Technology Subgroup received evidence from Chelmsford City Council Environmental Health.

This largely focussed on the procedures and technology currently used to monitor air quality at major road intersections and transport hubs. Members discussed how Air Quality Management Areas (AQMA) were identified and the ameliorative activity that local district partners take to mitigate pollution.

Further conversations took place surrounding the nature of the split tier approach. Direct responsibility for tackling air pollution rests with district authorities, while ECC is the highways authority. It was noted that, while some authorities were very happy with the nature and responsiveness of their relationship with Essex

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[8] http://www.essexair.org.uk

Highways, others found it more difficult to move ameliorative activity forward. It was agreed by members that a greater emphasis on partnership working moving forward would be crucial. ECC has a leadership role to play, encouraging and coordinating small to large interventions jointly with key district, borough and service delivery partners.

## 5.8.   Green infrastructure and air quality

Members of the Public Health and Technology subgroup also received evidence on the topic of green infrastructure, beginning with a presentation and discussion led by the ECC Sustainability & Resilience team.

The subgroup learned that green infrastructure constitutes a considerable component of contemporary urban planning. As a living thing, green infrastructure interacts with pollution formation and removal at regional and local scales. If strategically designed, Green Infrastructure (particularly hedging and trees) can mitigate poor air quality within fixed areas, producing natural volatile organic compounds that counteract the damaging effects of dense particulates. It can also act as a barrier to increase the pathway between pollution source and receptor – increasing mixing and reducing the concentration of pollutants. Trees and other forms of green infrastructure directly influence wind flow - creating a rough surface of different heights to encourage turbulence that increases mixing, and thus pollutant dispersion.

While direct experimental evidence of air pollution decreasing as a result of GI is scarce and difficult to generalise, members received compelling evidence suggesting that by increasing deposition through strategic placement of green infrastructure elements in street canyons they could reduce street level concentrations by as much as 40% for nitrous oxides and 60% for particulate matter. Judicious use of vegetation can create an efficient urban pollutant filter, yielding rapid and sustained improvements in street-level air quality in dense urban areas. Furthermore, green infrastructure has a much greater surface area for effective pollutant deposition than similarly sized grey infrastructure (concreting, brickwork and other fabricated barriers etc.) thereby removing greater amounts of particulate matter and other pollutants from ambient air.

Officers were keen to stress that, while the planting of green infrastructure has the greatest effect when safeguarding residents from car borne pollution, roadside hedges could also be planted in "bio retention areas" absorbing and draining away excess water as a living, biological Sustainable Drainage System (SuDS) feature. This would aid not only in the deposition of pollutants but would contribute to flood management activity. Green infrastructure, particularly hedges, are a flexible design tool – accommodating a great number of potentially purposeful renovations including drainage, seating, cycle storage and waste disposal. It was generally agreed by the subgroup that Essex Highways should consider installing green infrastructure as a component of all future highways infrastructure products.

## 6.  PLANNING

### 6.1.    Local planning

The Planning subgroup met twice, receiving evidence from representatives from district authorities and the Essex Planning Officers Association (EPOA).

Basildon and Chelmsford were identified as being particularly active in terms of planning activity to reduce air pollution. Officers from both of these districts discussed with members the work currently taking place to:

- Fulfil statutory obligations to monitor air quality levels
- Reduce congestion
- Encourage modal shifts towards sustainable, active transport (cyling/walking)
- Fulfil statutory requirements to install electric charging points in all new build houses and estates.
- Improve home broadband connectivity, enabling more people to work from home
- Incorporate environmental factors into local planning processes.
- Share information more fluidly with county/neighbouring local authorities to encourage partnership working.

It was noted that the lack of primary legislation regarding the need to design urban spaces and buildings with environmental concerns in mind meant that often, air pollution was side-lined as a vital component of the design process in favour of more commercial drivers. Planning officers will always prioritise access to employment and services, but oftentimes will neglect to plan how residents will travel to and from these locations due to prohibitive cost implications.

Also noted by members was the difficulty that both officers and members had in identifying those responsible for ensuring that air quality was considered properly on both a district/borough and county level.

### 6.2.    The Essex Design Guide and Local Planning

Members were also joined by senior ECC planning officers to discuss the recently published Essex Design Guide (EDG) and ECC's involvement in the EPOA, particularly how ECC uses its chairmanship to drive development and policy change as well as influence the content of the Essex Design Guide.

The Essex Design is a handbook for urban planning/architectural design intended to drive innovation and encourage high-quality development. In 2018 the guide was reiterated and published as an interactive web-based tool. This was essentially a move to future proof the resource, allowing it to adapt and develop alongside a field of research that is undergoing rapid transformation and advancement. The

guide covers a number of areas including architectural design, material usage, road mapping, parking allocation, project management and quality stipulations.

It was noted however, that environmental factors were notably absent from the online resource, with no clear steer on how to incorporate green infrastructure into existing or emerging neighbourhoods or how to plan environmentally sustainable urban spaces. This was seen as a priority area for improvement by members. While the design guide can only ever be a supplementary tool, the inclusion of pollution as a key design factor would perhaps help prioritise the need for sustainable, green infrastructure.

Also discussed was the ability for ECC to comment on and influence local plans when they arrive for sign off by ECC planning officers. It was generally agreed by members of the planning subgroup that greater consequence needs to be given to environmental factors and sustainable transport infrastructure when it comes to ECC providing comment and making recommendations. ECC need to be considering the environmental impact of local plans before agreeing to sign off. There should also be an acknowledgement of alternative planning methods, i.e. building greater pedestrianisation and green spaces into local plans as integral community assets. The same principle was echoed for emerging Garden Communities plans – with a particular focus on modal shift infrastructure and passenger transport provision.

It was further agreed that a wider conversation around how we can use existing planning processes to encourage modal shifts towards sustainable transportation is required - this should take place at a later Place Services & Economic Growth full committee meeting. A member development session on modal shift policy and sustainable transport should also be organised for the first half of 2019.

## 7. HIGHWAYS AND TRANSPORT

### 7.1. Sustainable transportation

Members of the Highways and Transportation subgroup were joined by the officers responsible for delivering the walking and cycling strategy for ECC. Members discussed work currently taking place to encourage active travel across the county, and the challenges faced in terms of cultivating the cultural shifts required for proposals to have lasting impact.

The lack of adequate modal shift infrastructure emerged as a considerable impediment. Members discussed the provision of efficient cycle storage in major transport hubs and noted that, while there were pockets of good practice across the county in areas such as Chelmsford and Colchester, this was far from consistent. The major challenge in this respect was identified as land ownership, with transport providers (network rail etc.) often having been reluctant to relinquish spaces for cycle storage in the past. It was agreed that partnership working would be crucial in securing greater cycle storage facilities (particularly at train stations)

and members discussed the option to adopt a case study approach – drawing on experiences at Waltham Forest. Here, the local authority has been very successful in negotiating effectively with transport providers to guarantee both the space and maintenance of storage blocs.



Cycle storage at Waltham Central train station – installed by Waltham Forest Borough Council in partnership with Transport for London.

The quality of foot and cycle paths was also raised with officers. Members discussed local areas of disrepair and received evidence as to the state of pathways across the county. It was agreed that in order to encourage behavioural and cultural shifts the infrastructure first needs to be in an adequate state of repair. Members agreed that a dedicated, ringfenced budget for footpath and cycle path maintenance should be explored by officers, demonstrating a commitment to raising the esteem of active transport over car usage. This should include signage maintenance.

Members heard evidence around the quality of signage in other rural counties and how smart signage can help to encourage cycle usage. This could include better route mapping and visibility, journey timings to central locations and landmarks, and distinct branding to distinguish cycle routes. Members also discussed speed limits in residential areas and the safety of cyclists and walkers. It was noted that the impact of speed restrictions would need to be explored further to properly determine whether this would have a net positive or negative impact on local air pollution.

Members also discussed with officers the uptake of electric and hybrid vehicles in Essex, and the viability of greater charging provision to encourage longer journeys in more environmentally sustainable transportation. It was noted by members that,

while there had been a considerable increase in the number of these vehicles in Essex, the infrastructure available was limited and potentially prohibitive. It was agreed that case studies should be explored in similarly rural counties to with a view to determining what greater charging provision in Essex might look like. This should include a conversation around emerging technologies.

## 7.2. Parking Partnerships

Members discussed the role and responsibility of both the North and South Essex parking partnerships in relation to modal shift policy. Officers admitted an engagement deficit with the parking partnerships as it stands, largely due to a lack of awareness as to their role and remit. It was noted by members that the parking partnerships often operate at significant surpluses. Members discussed the manner in which these could be directed at improving modal shift infrastructure within central locations – including cycle storage provision. Officers agreed to work more closely with the partnerships in future to build relationships with local representatives and provide insight where there is the potential to add value.

## 7.3. Local Highways Panels

The Highways and Transportation subgroup also received evidence from officers around awareness and engagement with Local Highways Panels (LHPs). It was noted that here was currently limited engagement with LHPs on the part of officers responsible for delivering modal shift policy. Members discussed the purview of the panels and agreed that there was a lack of clarity in regard to their role in this policy area. Members were keen to attain some guidance in this respect and noted that the LHPs could play a vital role in supporting sustainable transport in their areas and reducing air pollution.

## 7.4. Passenger Transport

Members received evidence from ECC passenger transport officers around cleaner buses and relationships with commercial passenger transport providers. Evidence gathered particularly focussed on the quality of ECCs current fleet of passenger transport vehicles, the nature of the routes provided by ECC over commercial providers and a short briefing on the current state of the privately-operated passenger transport sector in Essex.

Members discussed the expense of securing newer, more environmentally friendly buses. It was noted that this could be prohibitive. Officers expressed concern that, if the price of buses were to rise, this could potentially lead to a reduction in the number of routes operated by ECC. Vehicles are graded against European Emissions Standards (Euro 1-7[9]), which define the acceptable limits for exhaust emissions of new vehicles sold in the European Union and EEA member states.

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[9] https://www.theaa.com/driving-advice/fuels-environment/euro-emissions-standards

The emission standards are defined in a series of European Union directives staging the progressive introduction of increasingly environmentally friendly standards.

European Union regulations have been imposed on new cars since 1992 to improve air quality. The regulations have become more stringent by design to define acceptable limits for exhaust emissions. The evolution of emissions standards can be viewed below.

| Emissions standard | Applied to new passenger car approvals from: | Applied to most new registrations from: |
|---|---|---|
| Euro 1 | 1 July 1992 | 31 December 1992 |
| Euro 2 | 1 January 1996 | 1 January 1997 |
| Euro 3 | 1 January 2000 | 1 January 2001 |
| Euro 4 | 1 January 2005 | 1 January 2006 |
| Euro 5 | 1 September 2009 | 1 January 2011 |
| Euro 6 | 1 September 2014 | 1 September 2015 |

Members also received evidence of local measures taken by Chelmsford City Council to ensure the modernisation of local authority operated vehicles. According to the Air Quality Strategy adopted by the Chelmsford City Cabinet in October 2018[10] the authority has committed to:

*'…use its position as a community and business leader to lead by example in fully exploiting the opportunities for improved air quality presented by Euro 6 vehicle emission standards and exploring and utilising low emission methods of delivering its services. It has successfully done this with sustainable energy usage and now needs to apply this to modes of transport. It will also ensure that air quality is a key metric for future development and infrastructure improvements.'*

The paper attributes improvements in air quality largely to stricter vehicle emissions standards. Chelmsford City Council has made a commitment to focus on ensuring, where possible, that vehicles used in Chelmsford are Euro 6 compliant. This will include vehicles under its control such as its own fleet, vehicles it regulates such as taxis, and it will use its position to influence stakeholders such as local bus companies. For its own fleet the City Council will look to embrace the latest low emission technology as the technology becomes operationally and commercially

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[10] https://www.chelmsford.gov.uk/_resources/assets/inline/full/0/1729498.pdf

viable. Members noted the action taken by Chelmsford and discussed the potential to make similar commitments for it's own fleet of passenger transport vehicles. It was agreed by members of the subgroup that this approach should be commended and encouraged by other local authorities.

Officers maintained that, considering ECC only operates roughly 15% of the county's passenger transport routes, the most effective way to ensure cleaner, less polluting passenger transport vehicles is to encourage use of commercial bus routes and by working more closely with private operators. Discussions were held around work taking place to increase uptake of the County's passenger transport routes. This included investment in new technology and smarter timetabling, efforts to make routes more accessible,

Members expressed concerns around the quality of vehicles currently used by these operators. It was noted that often, private providers will use newer, cleaner vehicles (Euro 5 or higher) where there is competition to provide a route, and poorer quality vehicles in areas where they are uncontested. These concerns were noted by officers.

## 7.5.    Demand management

Members discussed with witnesses the various potential measures that ECC could utilise to decrease car usage and encourage sustainable travel. These could include congestion charges and workplace parking levies. Case studies were discussed where these measures had been utilised to great effect – particularly looking at cities such as Cambridge[11], Canterbury[12] and Nottingham[13]. It was noted by officers that the difficulty lies in securing the passenger transport infrastructure necessary to make alternative transportation viable. Members agreed that this would be a suitable topic for more in depth, full committee work.

## 7.6.    Sustainable Travel to school schemes and anti-idling

Members of the Highways and Transportation subgroup discussed existing walk to school schemes in their districts and around Essex. Of particular interest was the 3PR scheme recently extended by the South Essex Parking Partnership after a successful pilot run[14]. The aim of this scheme is to reduce inconsiderate, illegal and dangerous parking outside of schools, to reduce car usage and congestion during peak hours and to improve the fitness of residents. It was agreed by members that this case study should be considered for county rollout, after more feasibility work is completed.

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[11] https://www.cambridge.gov.uk/media/3807/air-quality-action-plan.pdf
[12]   https://news.canterbury.gov.uk/media/Draft-AQAP-2018-2023-Published-copy-for-P-and-R-Committee-18-April-2018.pdf
[13] https://www.gov.uk/government/news/government-approves-nottinghams-air-quality-plan
[14] https://www.schoolparking.org.uk/

Also discussed was idling outside of school gates. Members agreed that ECC should explore implementation of the volunteer scheme witnessed during the visit to Waltham Forest. Here, parents would volunteer on a rota basis to wear high visibility jackets and encourage idling cars to move on. Witnesses from Waltham Forest provide fairly convincing anecdotal evidence to suggest that the scheme had led to a dramatic decrease in idling in school zones during peak hours.

## 8. PROPOSED RECOMMENDATIONS

### 8.1. Public Health and Technology

1. In the interests of greater partnership working with local organisations ECC should 'sponsor' a PhD student at Writtle College - we need to take advantage of the asset on our doorstep and employ a dedicated researcher to explore how we can do better as a county and as an authority.
2. ECC should take a look at best practice walking/cycling to school incentive schemes to reduce pollution and congestion during peak morning/evening hours. This would also feed into the anti-obesity campaign. Successful models should be shared with schools county-wide to encourage uptake, possibly through the Parking Partnerships. ECC should also explore potential volunteer programmes to reduce instances of idling.
3. Small interventions can make a huge difference in changing Essex's car reliant culture - ECC to explore 'tactical urbanism' as an option to change behaviours. This could include Street shut down days for community events, scheduled daily road closures between set times, closure of rat runs and bus gates etc. Members saw how this worked well in Waltham Forest.
4. ECC should revamp the Essex Air website to make it clearer and more accessible, possibly allowing for reporting of examples of bad pollution from vehicles etc.
5. ECC should explore a text/email alert system to provide updates to Essex residents with pre-existing conditions about poor air quality in their area.
6. ECC needs to show leadership on the issue of air pollution, bringing people together and coordinating the response. ECC to organise an air quality summit/conference in late 2019. This will gather together key partners from the transport, public health, local government sectors to discuss plans moving forward and partnership working.

### 8.2. Planning:

7. Essex Design Guide (EDG) – the ECC planning team should work with the EPOA to include a section on air quality and environmental factors as part of online 'front page'. The EPOA should strongly encourage each district to adopt the EDG as supplementary planning guidance.
8. ECC should use its chairmanship of the EPOA to work more closely generally with district partners to ensure that air quality remains a constant priority

9. Essex County Council need to be considering the environmental impact of local plans before sign off, and should oppose aspects of plans which will worsen air quality.
10. Clear focus needs to be given to Garden Communities projects and how sustainable transport provision and green infrastructure are being incorporated into plans.

### 8.3. Highways/Transport:

11. ECC should be working with Parking Partnerships to explore how surpluses can better be spent to encourage modal shifts towards sustainable transport. This could include on road and off-road enclosed cycle parking spaces, and an investigation into the potential to increase parking charges for more polluting vehicles.
12. ECC should commit to all new highway's infrastructure projects containing some form of green infrastructure to mitigate air pollution.
13. Cycle storage should be made an absolute priority with ECC adopting a case study approach - partnering with rail providers, district authorities and passenger transport providers to provide sheltered cycle storage at all major transport hubs.
14. ECC should explore the impact of reducing speed limits in residential areas. We need to better understand how much this will improve safety for cyclists/walkers and whether slower cars will have a net positive/negative impact on the levels of air pollution.
15. More dynamic and intelligent cycle signage needs to be put in place, ensuring that routes are clearly marked. There also needs to be a dedicated budget for cycle route and footpath maintenance as well as signage upkeep, particularly around schools.
16. Councillors provide vital local insight and need to be kept more informed around the work we are doing to improve provision for sustainable transport. Key officers should engage with local highways panels on a semi-regular basis. A member development session on modal shift policy and sustainable transport should be organised for the first half of 2019.
17. Further clarity needs to be provided on the role and remit of Local Highways Panels in regard to the formation of local modal shift policy.
18. Air quality should feature as a distinct element of both the future highways strategy and revisions of the local transport plan.
19. ECC should hold high level conversations with Highways England around pollution on the roads for which they are the highways authority.
20. An update should be provided to the committee regarding the potential for LED lampposts to include inductive electric car/bike charging through lamp posts as well as air quality monitoring equipment.
21. Where work has been started on the shutting down of rat runs this work should be continued and extended on a periodic basis with a view to determining the feasibility of county-wide realisation.
22. A further conversation around how we can use demand management strategies to encourage modal shifts towards sustainable transport (cycling/walking) is required - this should take place at a later Place Services & Economic Growth full committee meeting. This should also include conversations around congestion charges, local economic sustainability and workplace parking levies.