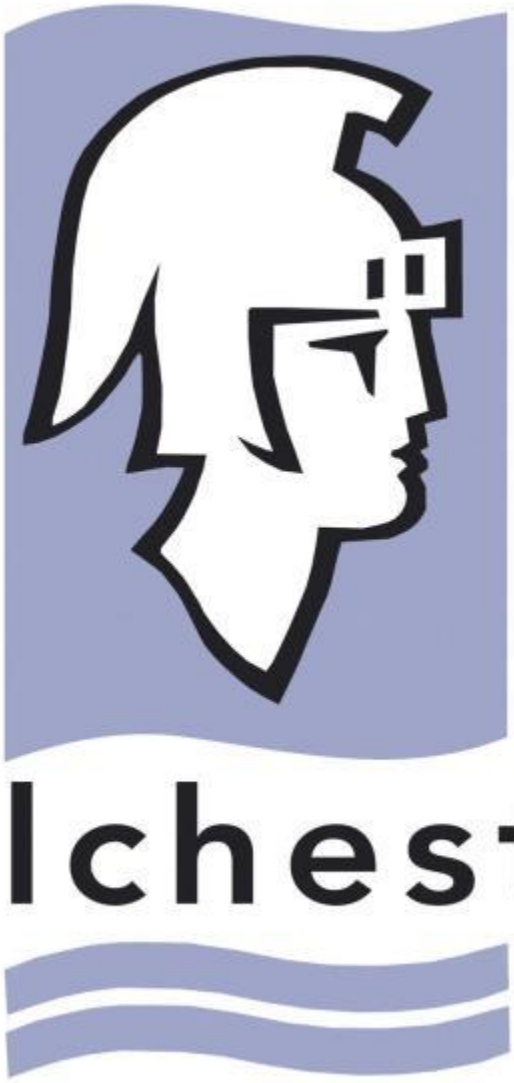

Healthier Air for Colchester

Colchester Air Quality Action Plan 2016-2021

A requirement under
Part IV of the Environment Act 1995:
Local Air Quality Management

Title: Colchester Borough Council Air Quality Action Plan

Prepared by: Environmental Protection
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In Association with:
Scientific Team,
Public Health & Protection Services,
Chelmsford City Council

This document contains hyperlinks to pages of the Low Emission Strategy and other evidence documents and resources.

Please note that the sizes of these electronic documents are significant.

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Foreword

Everyone has the right to breathe clean air. Legislation has significantly reduced exposure to smoking however the 'invisible' threat of air pollution remains present.

Never has air quality been so topical. In 2015, there have been Supreme Court rulings ordering the Government to take 'immediate action' on air pollution, revelations in the media that diesel vehicles worldwide may have not been complying with standards and an Ultra-Low Emission Zone proposed for central London in 2020.

Public interest in air quality has been at an all-time high. Being a vibrant town with a growing population, Colchester suffers from traffic congestion and the associated air pollution. There are enterprising plans for investment to build and regenerate but this vision needs to be matched with improvements to air quality.

For some time it was understood that air pollution and poor air quality was detrimental to the health of humans, animals and the environment.

Exposure to air pollution was believed to cause respiratory difficulties including asthma attacks, aggravate pre-existing heart and lung conditions, and cause premature mortality and life expectancy.

However, recent research has further defined the role of nitrogen dioxide and particulate matter for both short term and long term effects to human health. Defra have projected that annually there are in excess of 50,000 deaths in the United Kingdom attributable to air quality. For Colchester this equates to approximately 143 (10%) deaths in the Borough.

Air pollution is a serious public health challenge. With this Air Quality Action Plan, Colchester Borough Council has identified an ambitious set of measures with the purpose of improved health and achieving the legal limits for air quality.

Councillor Tina Bourne

Portfolio Holder for Housing & Public Protection

Executive Summary

This Air Quality Action Plan has been produced as part of our duty to Local Air Quality Management. It outlines the action we will take to improve air quality in Colchester between 2016 and 2021.

This action plan replaces the previous action plan which ran from 2007 to 2015. Highlights of successful projects delivered through the period of the last action plan include:

- Significant investment in pedestrian and cycle facilities
- **Love Ur Car** driving campaign
- The Colchester **Park and Ride** which opened in April 2015 along with other improvements such as bus priority lanes
- Construction of the **Northern Approach Road** which is a key transport initiative for the area
- Colchester **Low Emission Bus Project** to upgrade 10 buses with selected catalytic reduction and particulate traps

Figure 1 Colchester Park & Ride Route

Air pollution is associated with a number of adverse health impacts. It is recognised as a contributing factor in the onset of heart disease and cancer. Additionally, air pollution particularly affects the most vulnerable in society: children and older people, and those with heart and lung conditions. A report undertaken by Defra – Air Quality & Social Deprivation in the UK 2006 suggested a **strong correlation** with equalities issues, because areas with poor air quality are also often the less affluent areas.

The annual health cost to society of the impacts of particulate matter alone in the UK has been **estimated** by Defra to be roughly £16 billion per year. Colchester Borough Council is committed to reducing the exposure of people in Colchester to poor air quality in order to improve health.

We have developed actions that can be considered within 10 core principles:

- Transport Planning
- Public Health Engagement
- Raise Awareness of Air Quality
- Integrate Air Quality into Council Policies
- Continued Assessment of Colchester's Air Quality
- Reduce Emissions for Personal Car Use
- Low Emission Passenger Transport
- Low Emission Freight & Logistics
- Reducing the Impact of Development upon Air Quality
- Reducing Exposure to Air Pollution

Our priority is to tackle emissions from buses which have been identified to heavily contribute to pollution within the Town Centre areas. We will be working hard with Bus and Coach Operators to upgrade the fleet to reduce emissions. In addition we will explore the option of implementing a Clean Air Zone within the Town Centre in order to prevent the most polluting vehicles from entering areas of poor air quality.

Colchester Borough Council is already proactive at promoting sustainable travel alternatives such as cycling and walking, and will now also focus on exploiting new technology to create a change. We will ensure that a network of charging points for an Ultra-Low Emission Vehicle infrastructure is created within Colchester.

We have worked hard to engage with stakeholders and communities which can make a difference to air quality in Colchester. We would like to thank all those who have worked with us in the past and we look forward to working with you again as well with new partners as we deliver this new action plan over the coming years.

In this Air Quality Action Plan we outline how we plan to effectively tackle air quality issues within our control. However, we recognise that there are a large number of air quality policy areas that are outside of our influence (such as vehicle emissions agreed in Europe), but for which we may have useful evidence, and so we will continue to work with regional and central government on policies and issues beyond Colchester Borough Council's direct influence.

Responsibility and Commitment

Colchester is governed by two-tier authorities. Colchester Borough Council is the lower tier authority, Essex Council is the upper tier / highway authority and Highways England manages the core road network in the area.

In order to develop this Air Quality Action Plan it has been necessary to create the Air Quality Steering Group for Colchester.

The following officers are responsible for the development of this Action Plan:

- Belinda Silkstone - Environmental Protection Manager (Colchester Borough Council)
- Tim Savage - (Chelmsford City Council)
- Paul Wilkinson - Transportation Policy Manager (Colchester Borough Council)

The following contributors have assisted with development of the Low Emission Strategy, Air Quality Action Plan measures and background evidence documents:

- Andrew Whittles (Low Emission Strategies Ltd)
- Cambridge Environmental Research Consultants (CERC)
- Essex Air Consortium
- Essex County Council
- Essex Highways
- Environmental Protection, Colchester Borough Council
- First Buses
- Fleet Management, Colchester Borough Council
- Highways England
- Planning, Policy & Development, Colchester Borough Council
- Procurement, Colchester Borough Council
- Scientific Team, Chelmsford City Council

To be approved by:

- Beverley Jones - Head of Professional Services, Colchester Borough Council

The AQAP will be subject to an annual review, appraisal of progress and reporting to the Cabinet Committee. Progress each year will be reported in Annual Status Reports (ASRs) produced by Colchester Borough Council, as part of our statutory Local Air Quality Management duties.

Colchester Borough Council Air Quality Review

This report outlines the actions that Colchester Borough Council will deliver between 2016 and 2021 in order to reduce concentrations of air pollutants and exposure to air pollution; thereby positively impacting on the health and quality of life of residents and visitors to the Colchester.

It has been developed in recognition of the legal requirement on the local authority to work towards Air Quality Strategy (AQS) objectives under Part IV of the Environment Act 1995 and relevant regulations made under that part and to meet the requirements of the Local Air Quality Management (LAQM) statutory process.

This Plan will be reviewed every year and progress on measures set out will be reported on annually within Colchester's air quality Annual Status Report.

Air Quality in Colchester

Colchester like many other busy urban areas exceeds the legal limits for air quality. Air quality monitoring has identified ongoing exceedances of the **air quality objectives** at a number of locations across the borough.

In order to assess local air quality, the Council operates one automatic monitoring station sited in Brook Street, Colchester. In addition there are 59 NO_2 diffusion tubes sites located across the Town.

Of the seven pollutants included in LAQM, only Nitrogen Dioxide (NO_2) has been assessed to exceed the Air Quality Objectives.

Table 1 Air Quality Objectives for Nitrogen Dioxide

Pollutant	Air Quality Objective		Date to be achieved by
	Concentration	Measured as	
Nitrogen Dioxide	200 µg/m^3 not to be exceeded more than 18 times a year	1-hour mean	31.12.2005
	40 µg/m^3	Annual mean	31.12.2005

At locations where concentrations of Nitrogen Dioxide have been found to exceed the Air Quality Objectives, Colchester Borough Council has declared four **Air Quality Management Areas** (AQMAs). The most recent AQMA order can be found in Appendix 1.

Area 1 is designated in relation to breaches of the Nitrogen Dioxide (NO_2) annual mean objective and likely breach of the hourly mean objective. Areas 2, 3 and 4 are designated in relation to breaches of the NO_2 annual mean objective.

- Area 1 (Central Corridors) – include High Street, Head Street, North Hill, Queen Street, St. Botolph's Street, St. Botolph's Circus, St. John's Street, Osborne Street, Magdalen Street, Military Road, Mersea Road, Brook Street, East Street and St John's Street.
- Area 2 – East Street and the adjoining lower end of Ipswich Road.
- Area 3 – Harwich Road/St Andrew's Avenue junction
- Area 4 – Lucy Lane North, Stanway.

Due to AQMA boundaries being amended it was necessary to produce a new Air Quality Action Plan to cover all the declared areas. In order to facilitate this, an interim plan was put in place and Colchester Borough Council obtained funding from Defra through an Air Quality Grant to develop a Low Emission Strategy (LES) and to carry out a feasibility study for a Low Emission Zone (LEZ).

Findings from these studies would influence the content of the Air Quality Action Plan.

Air Quality Action Plan Project

The following project plan has been adopted to develop this new Air Quality Action Plan:

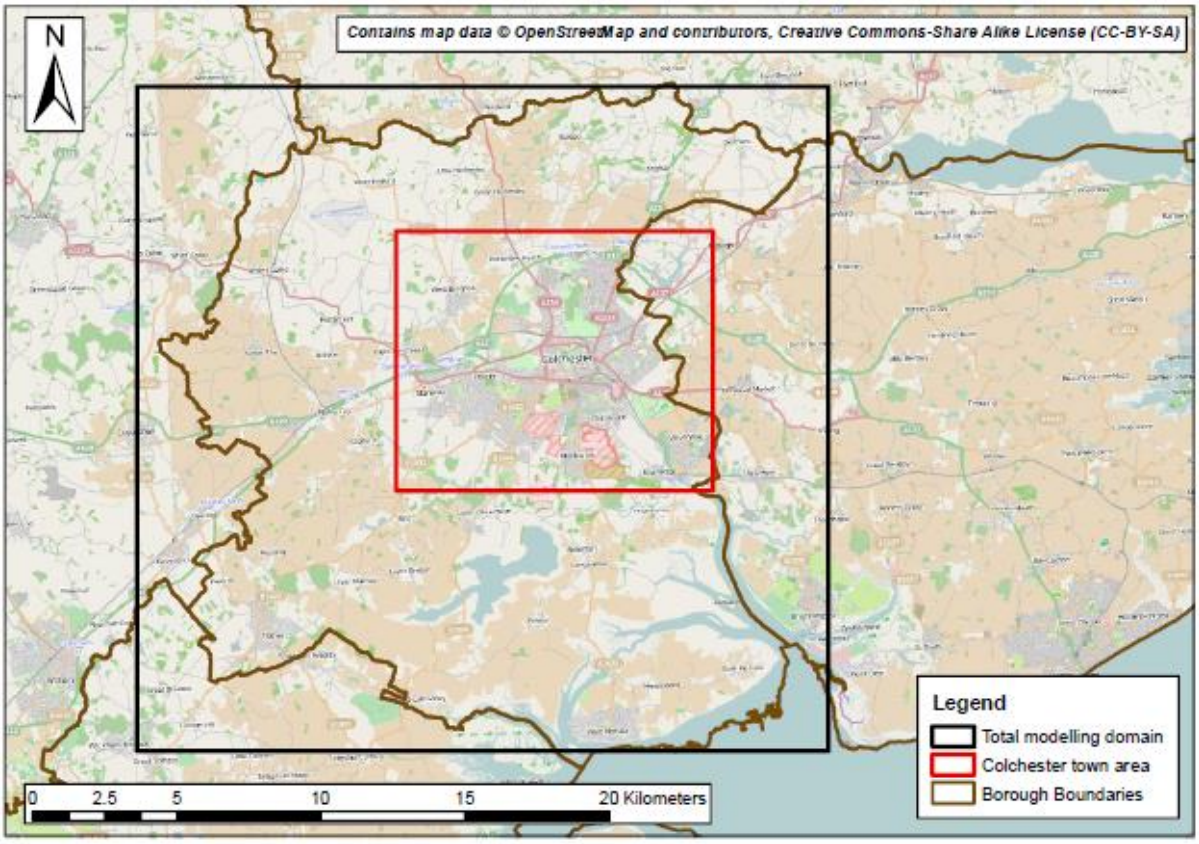
- Identify key stakeholders and form an Air Quality Steering Group
- Carry out a **baseline assessment** of emissions in Colchester. This baseline was set for the year 2012 coinciding with the last amendment of the AQMAs
- Undertake **source apportionment** work to identify the sources of pollution in the Borough and to assist with the development of effective measures
- Produce a **Low Emission Strategy** which contains actions which the Council will adopt in order to reduce its own contribution to air pollution
- Reconvene the steering group to consider the Low Emission Strategy findings in order to draft the new Air Quality Action Plan
- Draft the new Air Quality Action Plan
- Undertake a consultation with internal and external stakeholders
- Revise the Air Quality Action Plan where appropriate and submit to the Councils Cabinet for adoption.

Evidence Base

Colchester Borough Council commissioned Cambridge Environmental Research Consultants Ltd (CERC) to carry out a baseline air quality modelling study to support the development of the Low Emission Strategy, a Low Emission Zone feasibility study and the Air Quality Action Plan.

The study used air quality modelling to produce high resolution air quality maps to identify pollution hot spots and carry out source apportionment work. The baseline was produced for the year 2012.

Figure 2 Modelling domains used to calculate emissions



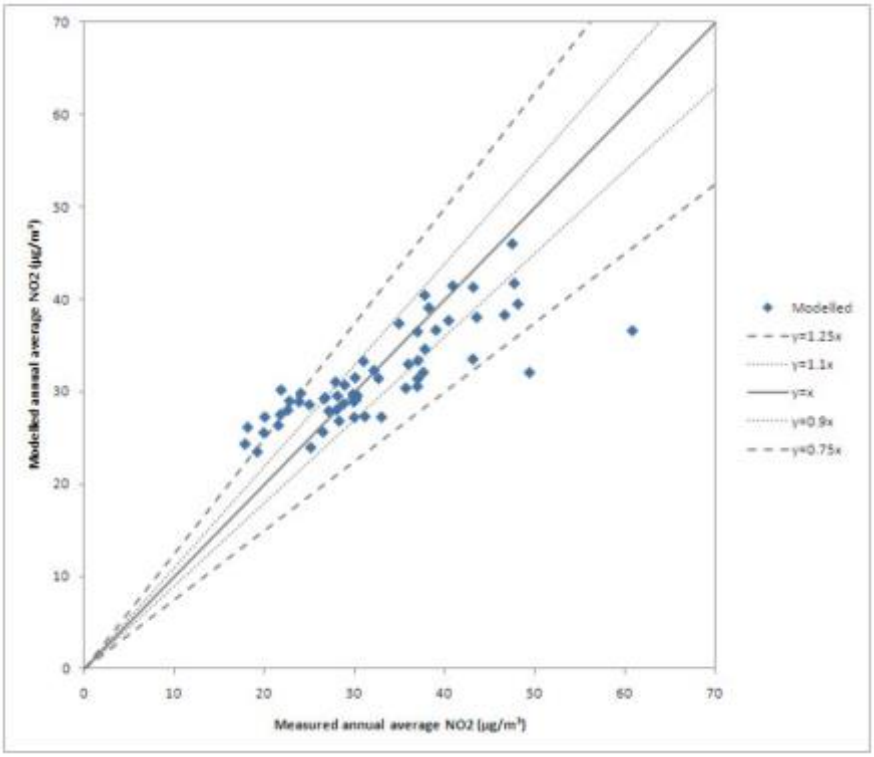
The main source of air pollution in the Borough is road traffic emissions from major roads, notably the A12, A133, A134, A1232, Brook Street and Mersea Road.

For these road emissions, measured traffic flow data was used in conjunction with gradient and street canyon information and applied using time varying profiles to simulate normal traffic variation. Data such as bus stop locations and queuing traffic was used to account for additional emissions caused by idling and slow moving traffic.

Other pollution sources, including commercial, industrial and domestic sources also make a contribution to background pollution concentrations and were included in the modelling process.

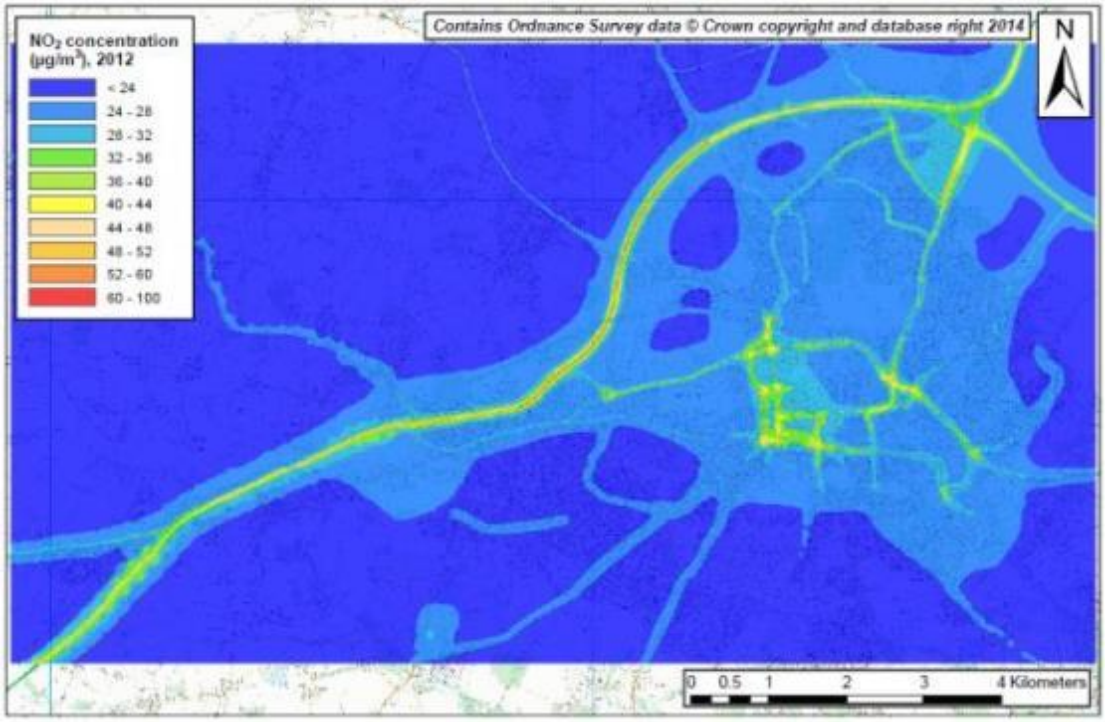
Validation of the modelling showed good agreement between measured and monitored concentrations for 2012. This gives good confidence for the model setup and output concentrations.

Figure 3 Modelled annual average NO_2 concentrations against monitored concentrations for 2012



The following map shows the modelled annual average NO_2 concentrations in 2012. Predictions for the A12 Trunk road, main traffic routes and Town Centre area identify poor air quality.

Figure 4 Predicted Annual Average NO_2 Concentrations 2012



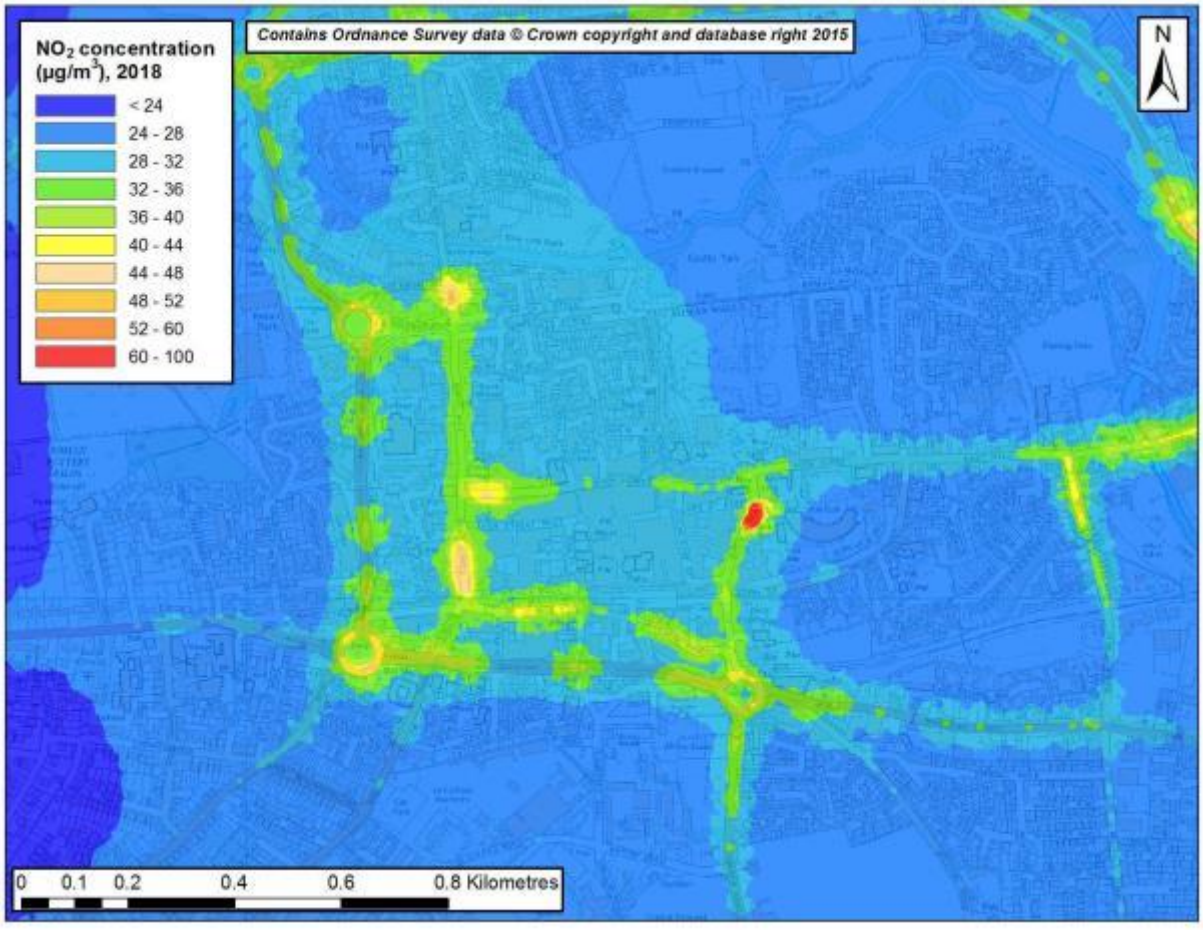
The Low Emission Strategy

The **Low Emission Strategy** was developed as an overarching strategy to encompass the entire Borough of Colchester. The main focus was to introduce a package of measures to reduce emissions, both air quality and carbon from all sectors. These measures would influence policy development for transport, planning, procurement and service delivery.

During development of the strategy, dispersion modelling has been used to predict pollutant concentrations in 2018 if no specific actions were taken.

The following plan shows dispersion modelling focused on Colchester's town centre area. At most locations, air quality is predicted to improve however exceedances at relevant exposure are still predicted.

Figure 5 – Predicted Annual Average NO_2 concentrations Colchester Town Centre, 2018 base case

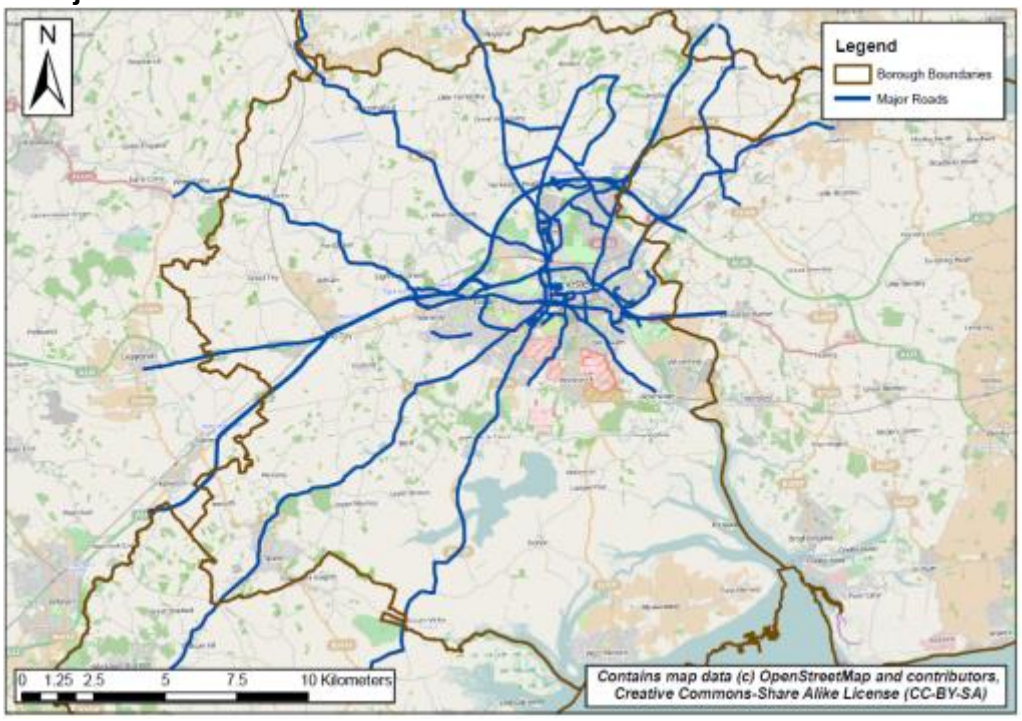


Development of the Low Emission Strategy has identified a number of important areas to focus upon.

Transport Emissions

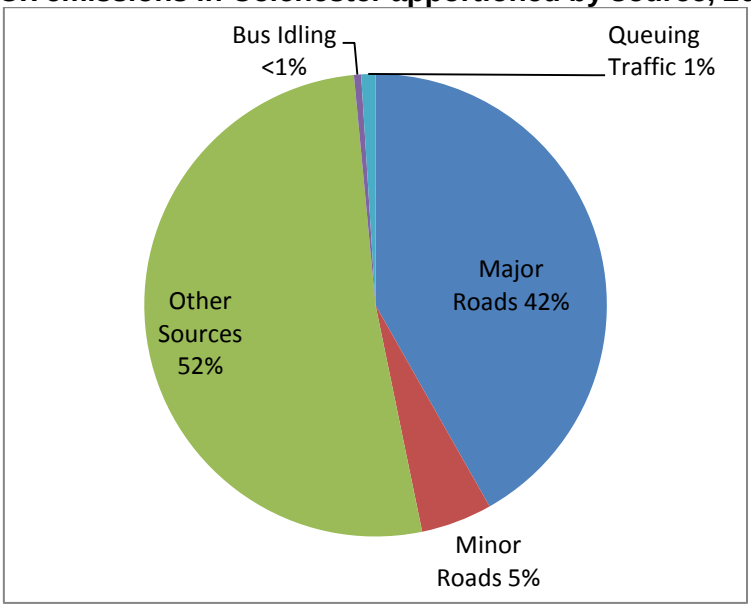
Colchester has a large road infrastructure. The following figure identifies the important traffic links within the Borough.

Figure 6 Major Roads within Colchester



Source apportionment modelling has identified that road transport emissions accounted for 48% of total NOx emissions in the Colchester Town Centre area. The other 52% would be made up of emissions from commercial, industrial and domestic background sources.

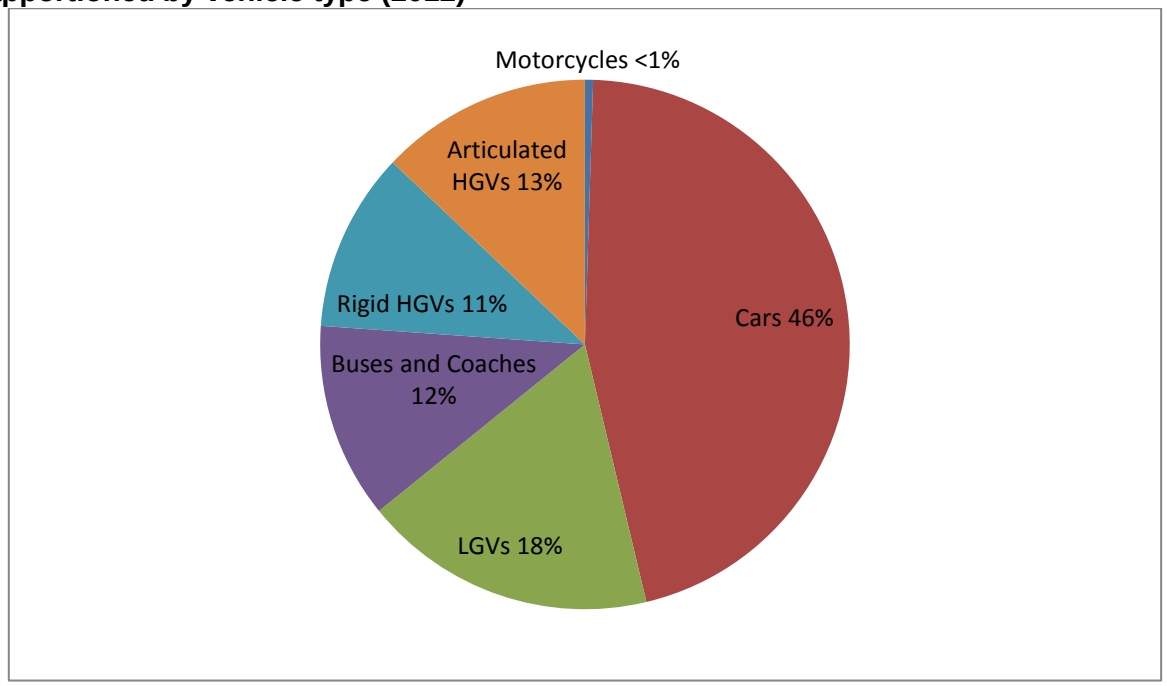
Figure 7 Total NOx emissions in Colchester apportioned by source, 2012



The road transport emissions represent the main sector that the Air Quality Action Plan can exert influence.

Breaking down the road transport emissions by vehicle type identifies that the NOx emissions will be dominated by diesel based vehicles. LGVs, rigid HGVs, articulated HGVs, buses and coaches account for 54% of NOx emissions and it would be expected that diesel accounts for a significant proportion of the passenger car sector.

Figure 8 Total road transport NOx emissions within the Colchester Town Centre area apportioned by vehicle type (2012)



Bus and Coaches

The bus fleet in Colchester is privately owned and operated, formed of numerous larger and smaller national and local operators. This fleet was found to be aging and of a low Euro Standard when compared to the national fleet.

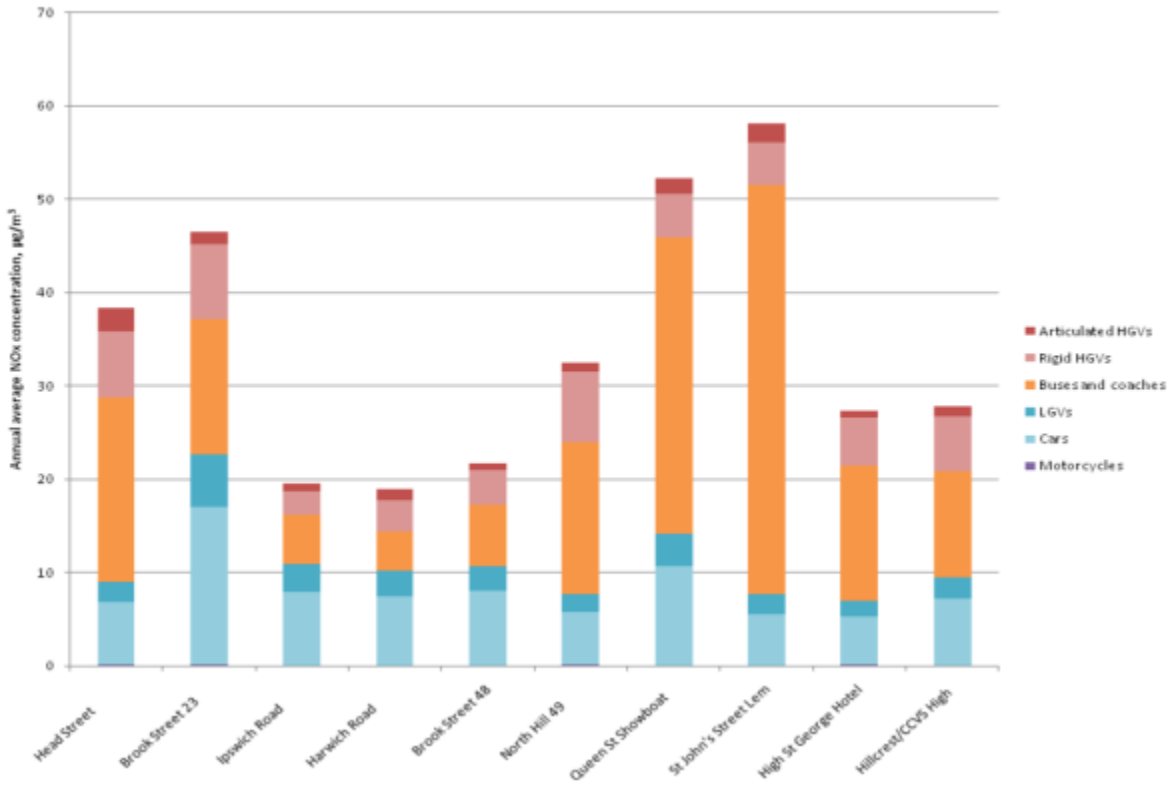
Table 2 Split for buses by Euro vehicle emissions categories and type, comparing 2012 national projections and the 2012/2015 Colchester bus fleet.

Bus Type	Euro Standard	NAEI 2012 Urban (England) Bus Fleet (%)	Borough of Colchester Bus Fleet (%) 2012	Borough of Colchester Bus Fleet (%) 2015
Single-Decker	Pre-EURO I	0.1	0.0	0.0
	EURO I	0.4	0.0	0.0
	EURO II	3.4	14.8	14.6
	EURO III	11.0	54.1	15.1
	EURO IV	5.9	0.0	6.0
	EURO V	10.7	1.6	2.5

	EURO III/IV/V SCR	0.0	0.0	8.0
	EURO VI	0.0	0.0	8.5
Double-Decker	Pre-EURO I	0.3	0.0	0.0
	EURO I	0.8	6.6	0.0
	EURO II	7.3	6.6	24.1
	EURO III	24.0	16.4	10.6
	EURO IV	12.8	0.0	9.5
	EURO V	23.4	0.0	0.0
	EURO III/IV/V SCR	0.0	0.0	1.0
	EURO VI	0.0	0.0	0.0

The contribution to emissions at some locations was found to be significant. The following figure shows a number of locations where residential receptors are located.

Figure 9 NOx concentrations from major roads apportioned by vehicle type (µg/m^3)



One monitoring location that has seen a large rise in emissions is in Osborne Street near to the bus station which was opened in 2013.

Figure 10 Monitored Annual Mean NO_2 concentrations at CBC71 Osborne Street 2012-2014

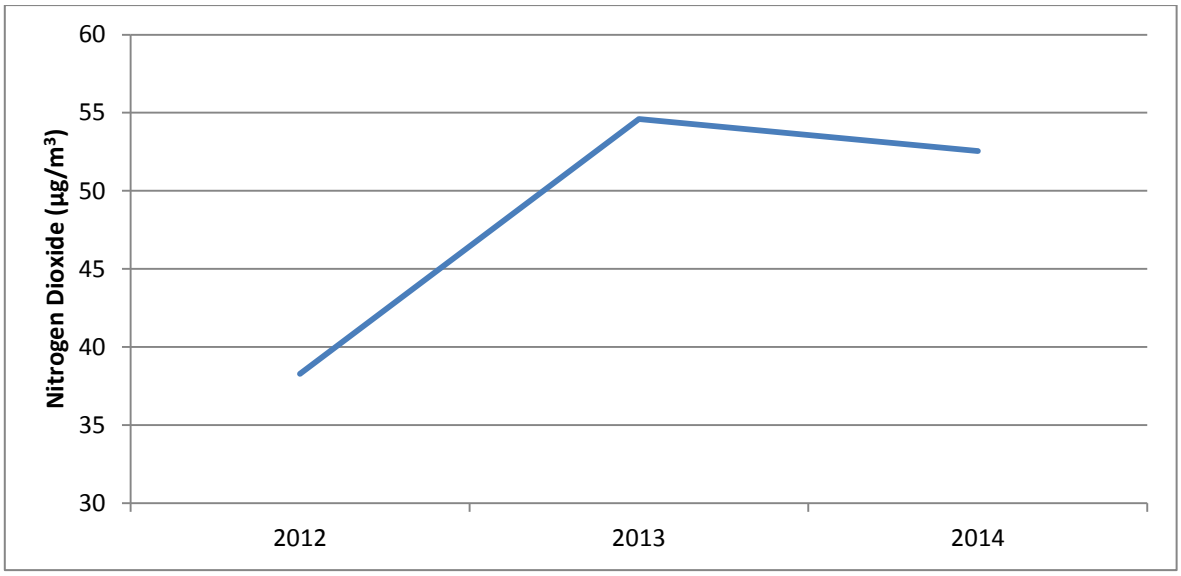
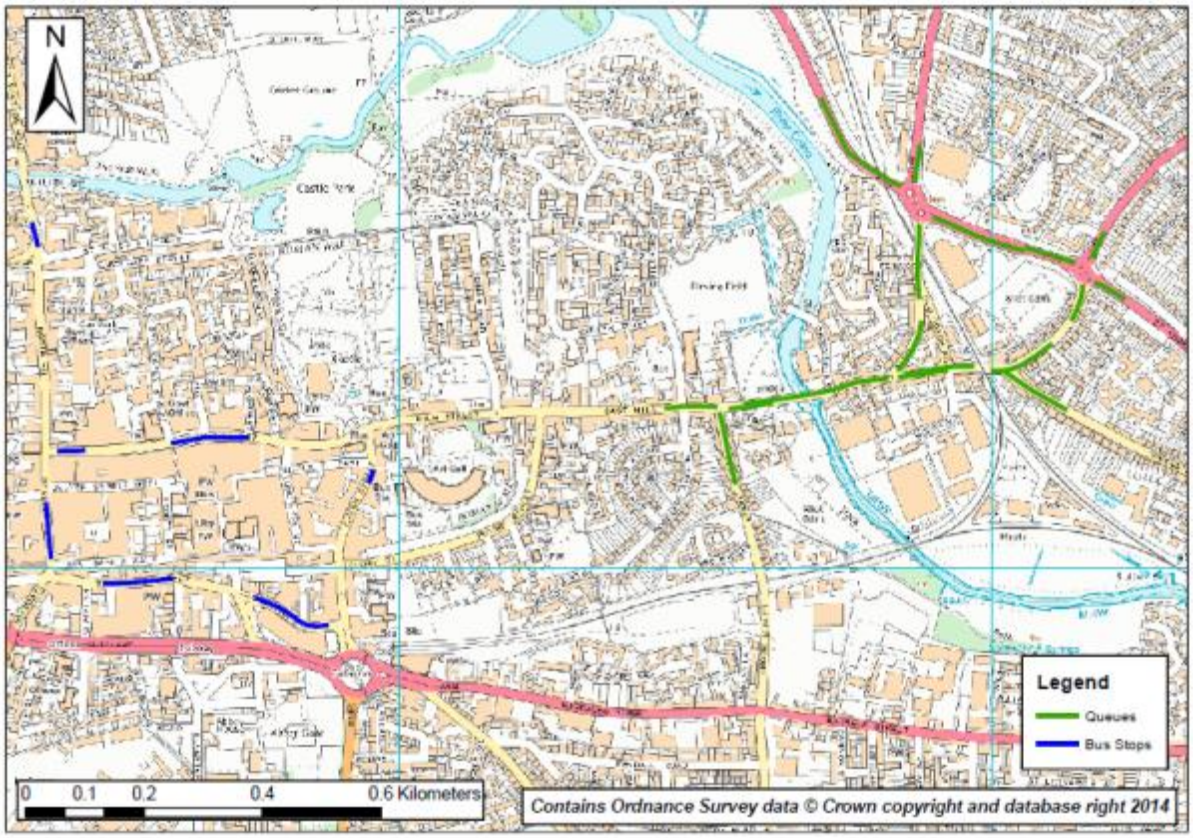


Figure 11 Queue and bus stop locations used in Town Centre modelling



Further examination of the modelling data finds that bus idling can contribute significantly near to major bus stops.

Table 3 Summary of NOx source apportionment concentrations (µg/m3) by major source group

Site ID	Site Name	Major Roads	Minor Roads	Bus Idling	Queuing	Other Sources	Background	All
21	Head Street	38.0	0.4	47.9	0.0	11.4	25.5	123.3
69	23 Brook Street	45.9	0.5	0.1	12.7	4.2	25.5	88.9
72	Ipswich road	19.3	0.5	0.1	1.6	4.3	25.5	51.2
76	Harwich Road	18.9	0.5	0.0	5.1	4.3	25.5	54.3
88	48 Brook Street	21.6	0.5	0.1	1.8	4.3	25.5	53.9
107	49 North Hill	32.3	0.5	0.7	0.0	14.6	25.5	73.6
110	Queen St Showboat	51.8	0.5	1.1	0.0	8.8	25.5	87.7
111	St Johns St Lemontree	58.0	0.4	2.1	0.0	11.1	25.5	97.2
112	High St George Hotel	27.2	0.5	16.1	0.0	12.0	25.5	81.3
114	Hill St / CCVS	27.2	0.5	0.4	0.1	7.3	25.5	61.3

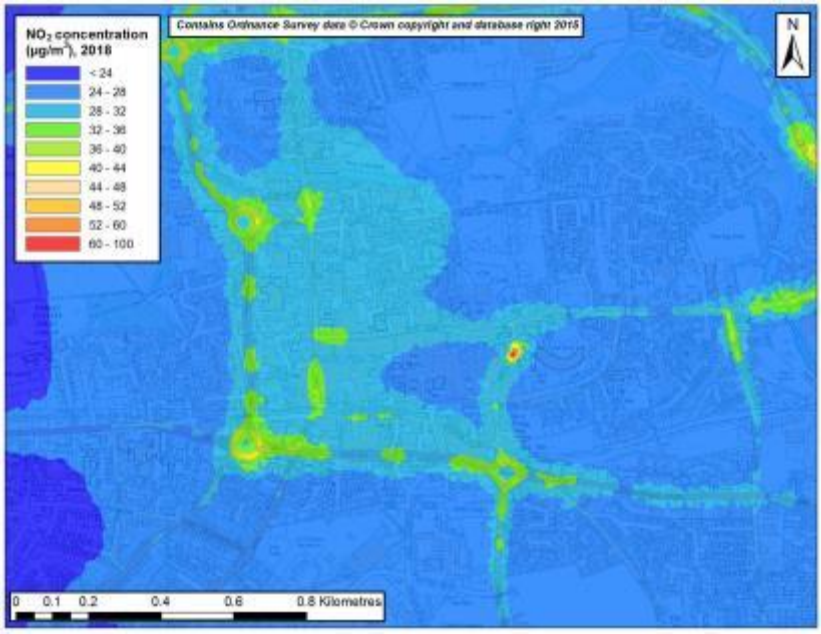
Normal investment practice is for bus operators to upgrade 6.7% of the fleet annually. On this basis it is likely that it would take 15 years for the full fleet to be upgraded to at least a Euro VI standard.

In 2014 Colchester Borough Council were **awarded** £194,000 by the DfT to fit selective catalytic reduction and particulate trap technology to ten buses. Retrofitting Euro III buses with this technology typically **reduces emissions** to beyond Euro V specifications and reduces the nitrogen dioxide fraction in the exhaust output.

These upgrades appear to have kick-started operators into upgrading their fleets. The breakdown for the 2015 bus fleet shows significant improvement with approximately half of the buses operating currently at Euro V standard or above. In addition to the local bus service, the newly opened Park & Ride site operates buses of Euro V standard.

Dispersion modelling predicts that if the local bus fleet was upgraded to Euro VI specification by 2018, compliance within AQMA 1 would be much closer to being achieved.

Figure 12 Predicted Annual Average Nitrogen Dioxide Concentrations, 2018, all buses Euro VI



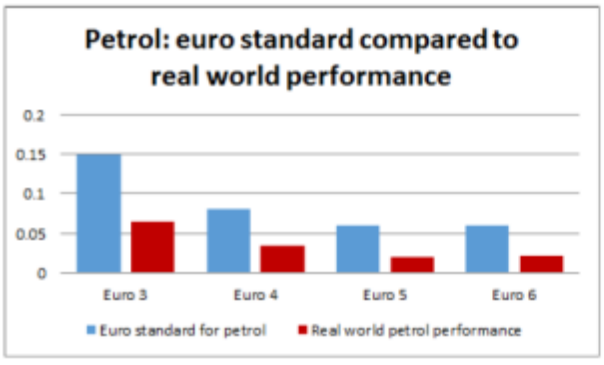
Passenger Cars and Taxis

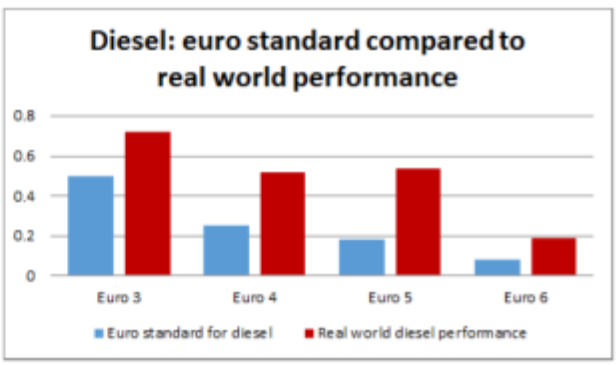
Colchester has a high level of 'local labour market self-containment'. This means a large proportion of people live and work locally in the Colchester Borough (69%) and use the car for transport (55%) which may be substantially contributing to the air pollution.

Source apportionment found that the passenger car contributed 46% of NOx emissions within the Town Centre area – directly affecting AQMAs 1 and 2.

For the passenger car split between petrol and diesel, national fleet assumptions were used. New petrol vehicles tend to emit very low amounts of NOx however diesel cars operating in real world urban driving conditions rather than on a test cycle have been found to exceed Euro specifications **significantly**. **Studies** have found that the fraction of primary NO_2 within these emissions has increased however further research is required in this area.

Figure 13 Car Euro Standard Compared to Real World Performance Copert 4v11 (2014) (g/km)





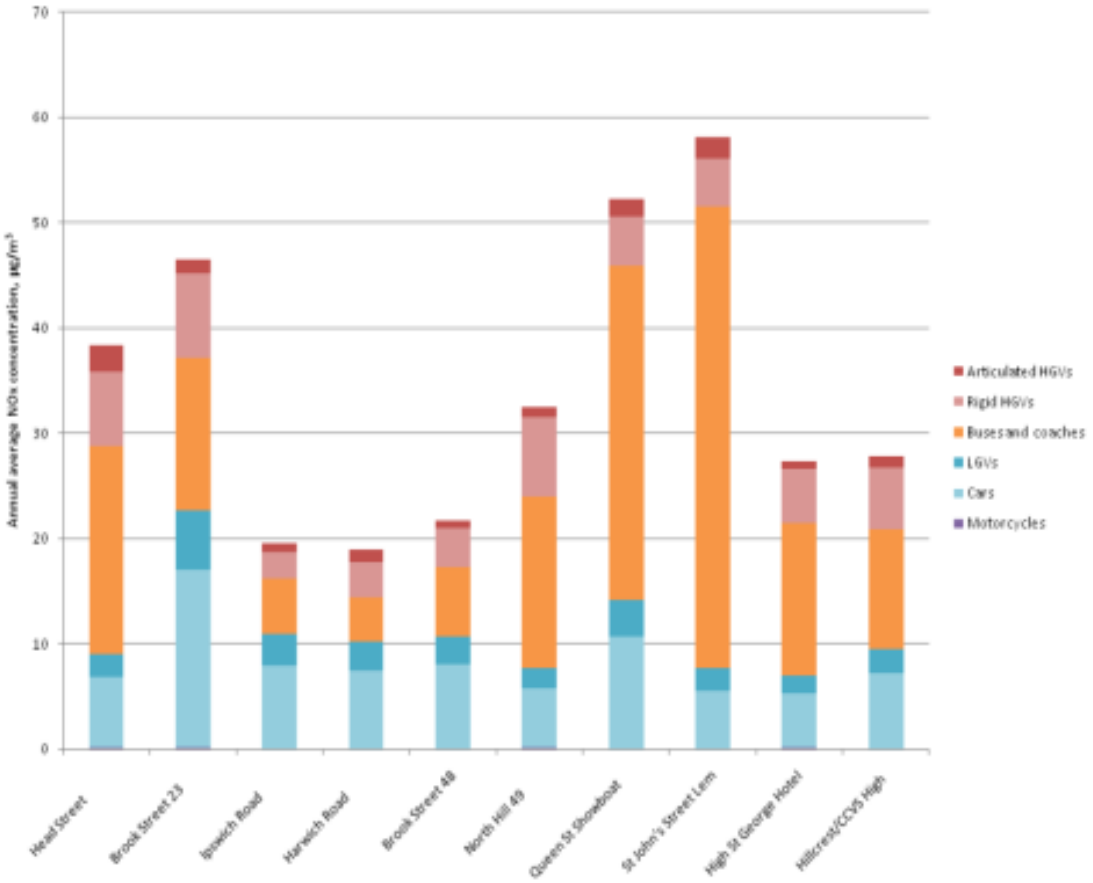
Beyond promoting suitable travel alternatives, improved traffic management and implementation of a fully restrictive clean air zone, an Air Quality Action Plan has little control over car emissions.

Commercial Vehicles

The efficient movement of freight is an important element to reducing emissions within the Town Centre and connecting goods vehicle routes. Modelling has identified that commercial vehicles contribute 42% of the NOx emissions within the Colchester Town Centre area (Articulated HGVs 13% / Rigid HGVs 11% / LGVs 18%).

However, the figure below identifies that at receptor locations the influence is far less significant than buses and coaches.

Figure 14 NOx concentrations from major roads apportioned by vehicle type (µg/m^3)



Transport for Colchester strategy aims to develop an efficient, effective and sustainable integrated multi-modal transport network to accommodate the transport needs of Colchester.

The project aims to identify the impact of freight distribution in Colchester. This information will enable a Freight Quality Partnership to be set up for the town. The Transport for Colchester strategy has been identified as a more appropriate forum to manage general freight measures such as delivery programming, loading facilities and also to consider the merits of a sustainable freight distribution centre for the town with coordinated and consolidated delivery structure.

Land-Use Planning and Development Control

The **Colchester Air Quality & Planning: Technical Guidance** follows an innovative approach based on key principles in the National Planning Policy Framework (NPPF). It aims to simplify the planning system and provides guidance for sustainable development in air quality terms, while providing a consistent approach across the region.

The guidance promotes the consideration of air quality mitigation at the design stage and the use of damage costs to help identify the scale and kind of mitigation that may be required to make a scheme acceptable. It also includes standards for the cost effective provision of electric vehicle charging on development schemes - many other UK authorities are now adopting similar standards.

Clean Air Zone Feasibility Study

Draft Air Quality plans published by Defra on 12th September 2015 proposed the implementation of a new Clean Air Zone (CAZ) framework for use by local authorities in England.

The CAZ framework would provide a set standard for vehicles to meet prior to entering any zone. Those not meeting the standard would be subject to a charge or other restriction appropriate to the type for vehicle. These interventions would be designed to ensure that the most polluting vehicles are kept out of priority areas.

Clean Air Zones can be based upon four classes of access control:

Class A – Buses, coaches and taxis only
Class B – Buses, coaches, taxis and heavy goods vehicles (HGVs)
Class C – Buses, coaches, taxis, HGVs and light goods vehicles (LGVs)
Class D – Buses, coaches, taxis, HGVs, LGVs and cars

Currently it is understood that the following emissions standards will be proposed:

Vehicle Type	NOx Emissions Limit (at first registration or post retrofit)
Bus / Coach	0.4g/kWh
HGV	0.4g/kWh
Van (1305-3500kg)	0.125g/km
Car / Light Commercial Vehicle (up to 1305kg)	0.08g/km

Detail of the CAZ framework is anticipated in early 2016. Defra have identified that Clean Air Zones are likely to only be required in the following areas;

- Greater London Urban Area
- West Midlands Urban Area
- West Yorkshire Urban Area (Leeds)
- East Midlands (Derby)
- Nottingham Urban Area
- Southampton Urban Area

This is due to Defra modelling on a national scale which appears to **underestimate** actual pollution. However, the Air Quality Steering Group believes that a Clean Air Zone based on Class A/B access controls may be necessary in order to achieve full legal compliance.

The feasibility study for a formal traffic intervention will be carried out using the forthcoming national framework. This feasibility study is likely to consider the following;

- Air quality impact (by concentration)
- Economic analysis based upon the HM Treasury's Green Book **guidance**
- Health benefits
- Cost of implementation, infrastructure and operation
- Impact on vehicle operators

The emissions inventory used in the baseline air quality modelling study was projected forward to 2018 and used calculations to ensure a representative fleet composition. Traffic flow data was projected in line with DfT forecasts for traffic growth. The Colchester Park and Ride route was added and a number of hypothetical emission reduction scenarios **modelled**;

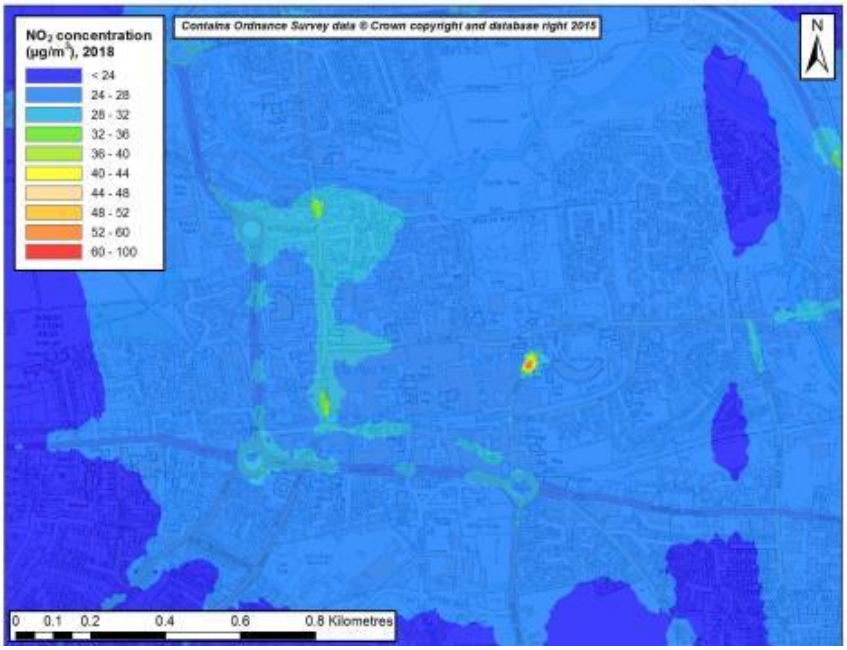
- Scenario 01: no changes made to the 2018 inventory
- Scenario 02: all vehicles are assumed to meet Euro 6/VI emissions standards
- Scenario 03: all buses are assumed to meet Euro VI emissions standards
- Scenario 04: all cars are assumed to meet Euro 6 emissions standards
- Scenario 05: all cars are assumed to have petrol engines
- Scenario 06: all HGVs are assumed to meet Euro VI emissions standards
- Scenario 07: all LGVs are assumed to meet Euro VI emissions standards

Scenarios were also modelled to represent underperformance of cars meeting the Euro 6 emission standards.

The emission reductions from these scenarios will be used to carry out a feasibility study into implementing a Clean Air Zone.

In contrast to Figure 5, Figure 15 demonstrates the reduced NO_2 concentrations that could be achieved if all vehicles were Euro6/VI compliant.

Figure 15 Predicted Annual Average Nitrogen Dioxide Concentrations, 2018, all vehicles Euro VI/6



In the scenario shown in Figure 15, almost all areas of AQMA 1 are below the Air Quality Objectives for Nitrogen Dioxide (40 μg/m^3) with the exception of Queen Street. Buildings flank the road to form a street canyon as shown below. However this site has been identified for future regeneration which could remove the canyon features.

Figure 16 Queen Street – Street Canyon

Health Assessment

In 2010 the Committee on the Medical Effects of Air Pollutants (COMEAP) published a **report** that concluded nearly 29,000 deaths in the UK at typical ages were caused by fine particulate matter air pollution ($PM_{2.5}$). This represented a loss of total population life of 340,000 life years.

COMEAP are due to publish a further report in 2016 which will estimate the deaths caused by Nitrogen Dioxide. Defra has indicated that the initial **estimates** are that this will be equivalent to 23,500 deaths annually in the UK.

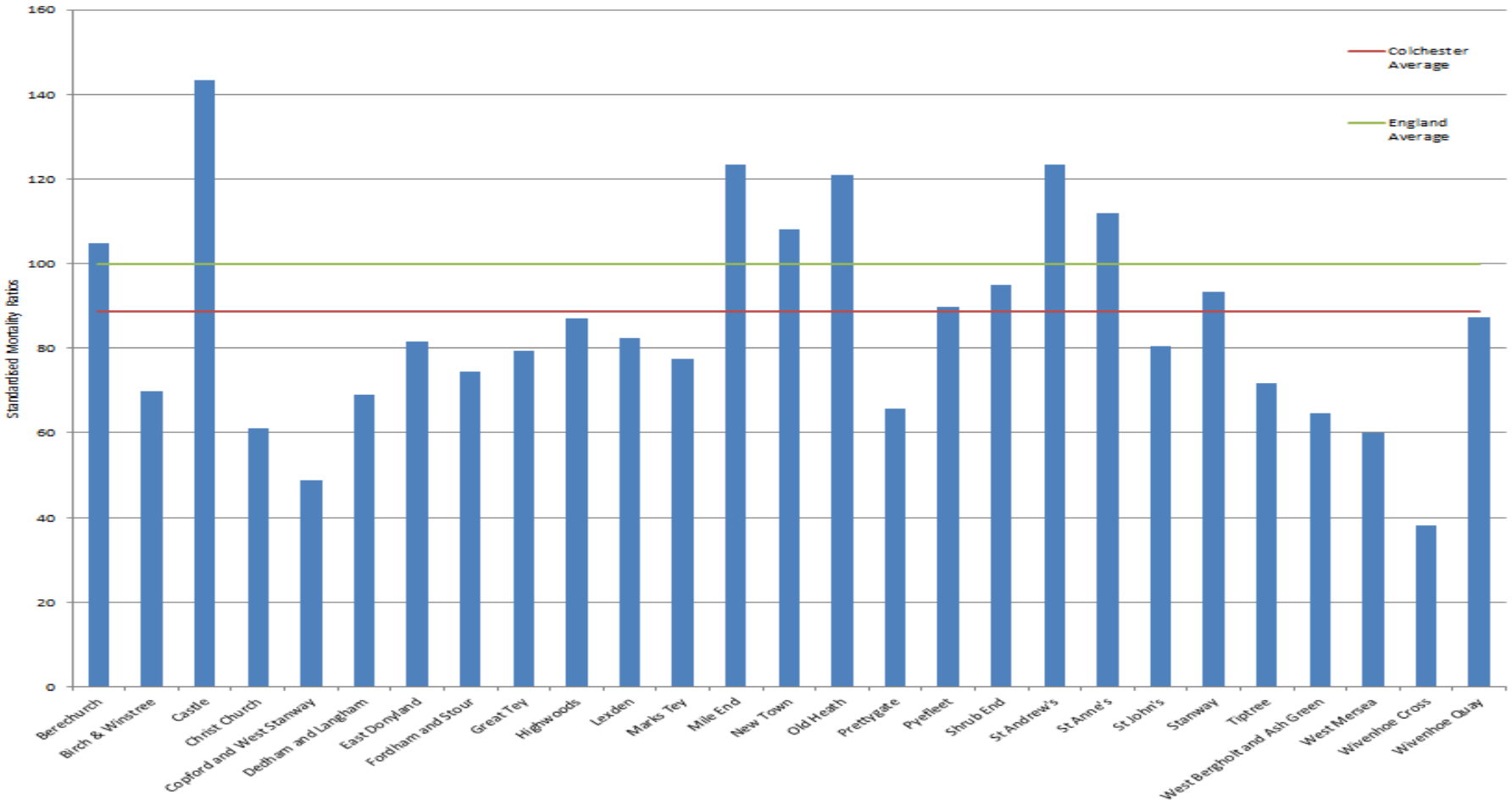
These figures represent mortality rates of 5.7% ($PM_{2.5}$) and 4.6% (NO_2) in the United Kingdom. In local terms, using the Public Health Outcomes Framework **Indicator 3.01** which is defined as the fraction of all-cause adult mortality attributable to anthropogenic particulate air pollution (measured as fine particulate matter, $PM_{2.5}$). Colchester is currently measured at 5.6%.

Translating these mortality rates locally, nitrogen dioxide would represent a 4.5% mortality rate and combined with particulate matter, this would be 10.1% of deaths in Colchester attributable to air pollution. In 2013, this would equate to approximately 143 deaths.

Local Public Health **data** was assessed to see if there was a correlation between air quality and cause of death by respiratory disease in Colchester. It was found that although the majority of Wards were better than the national average, seven wards fared worse.

Appendix 2 details the methodology used by Public Health England to extract this information from Office of National Statistics (ONS) data.

Figure 17 Cause of Death in Colchester Chart 2008-2012 (all ages) – Respiratory Disease



The areas above the average for England are located centrally. The Castle ward average exceeds 125% of the England average. It should be noted that this area contains the A133 Cymbeline Way, A133 Cowdray Avenue and A134 main roads, all of which are strategic transport routes within the town.

The following figures show the data geographically.

Figure 18 Cause of Death in Colchester Map 2008-2012 (all ages) Respiratory Disease

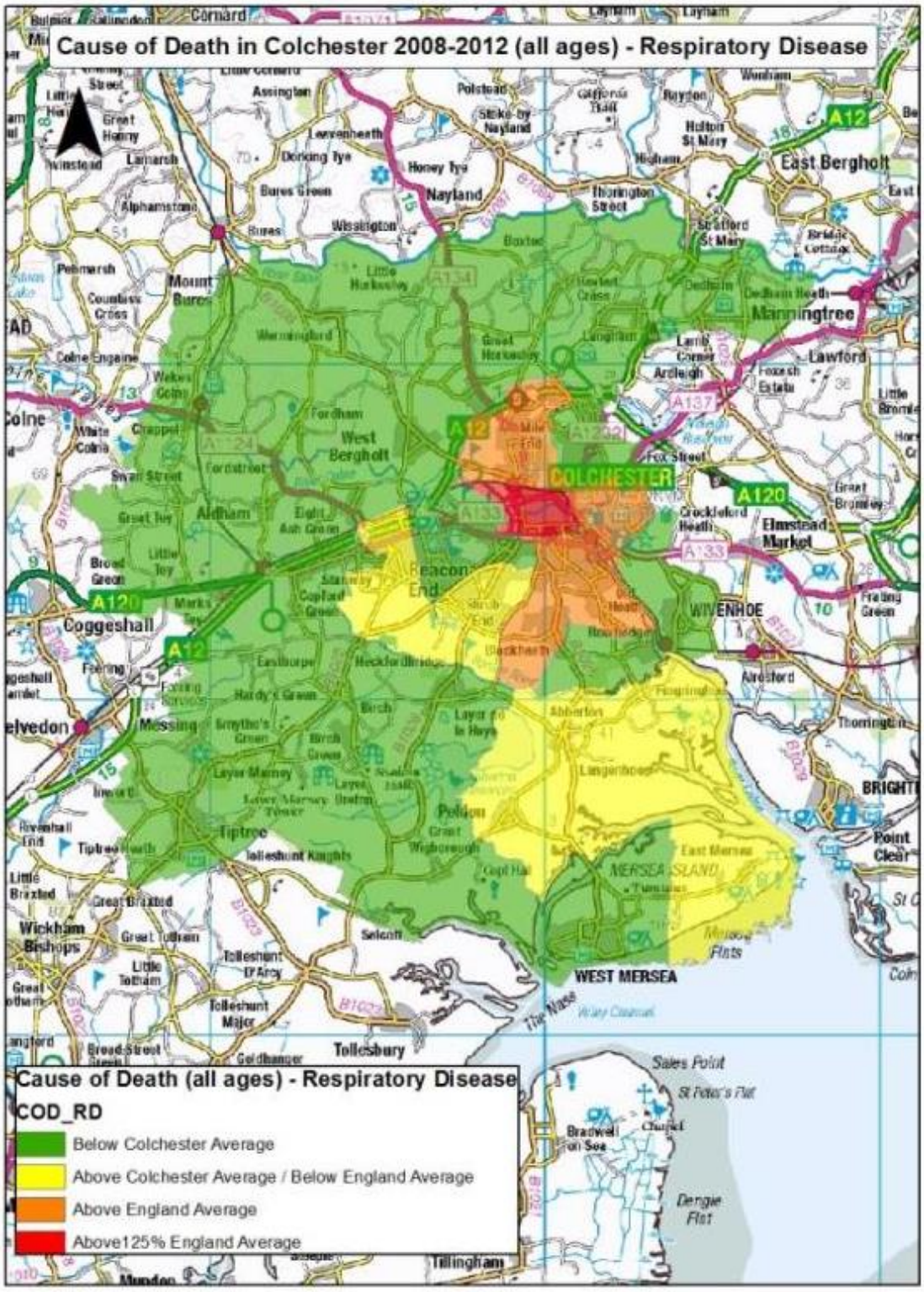
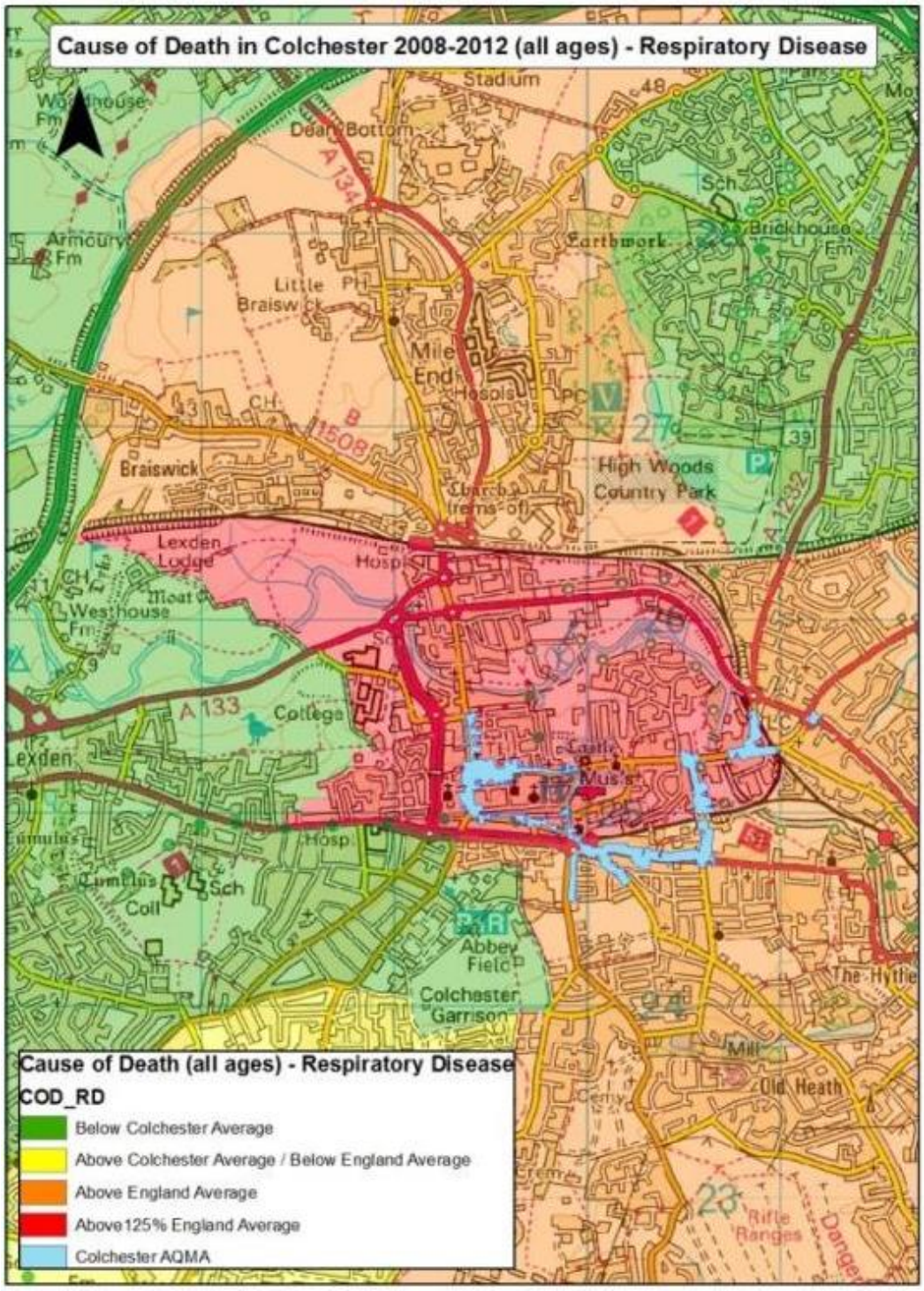


Figure 19 Cause of Death in Colchester Map 2008-2012 (all ages) – Respiratory Disease – Town Centre Area (AQMAs overlaid)



Whilst, the public health data has shown that seven of the boroughs wards have high incidents of respiratory disease the information does need to be explored further to determine whether there is a local link between respiratory disease and poor air quality.

A Health Impact Assessment (HIA) would allow the effects of air pollution on health to be thoroughly understood at a local level. This would also be a key component of feasibility studies on possible traffic interventions such as a Clean Air Zone.

Development of the Action Plan

By adopting 10 core principles that define the way that Air Quality is managed within Colchester, a number of strategic actions and complementary measures have been developed which place the primary focus on improving the health of residents and complying with the legal Air Quality Objectives.

Further localised Action Plan measures will focus on site-specific exceedances.

Measures have only been added where it has been identified that the action is deliverable within the resources of the Council and partnering authorities.

The Core Principles

Principle 1: Transport Planning

Principle 2: Public Health Engagement

Principle 3: Raise Awareness of Air Quality

Principle 4: Integrate Air Quality into Council Policies

Principle 5: Continued Assessment of Colchester's Air Quality

Principle 6: Reduce Emissions from Personal Car Use

Principle 7: Low Emission Passenger Transport

Principle 8: Low Emission Freight & Logistics

Principle 9: Reducing the Impact of Development Upon Air Quality

Principle 10: Reducing Exposure to Air Pollution

Air Quality Action Plan Measures – Core Principles

Transport Actions

Principle 1 – Transport Planning

Local transport authorities in England are required to produce Local Transport Plans (LTPs) under the Local Transport Act 2008. LTPs should include strategies and implementation plans related to all relevant environmental issues.

Cooperation between transport, environmental services, public health, and planning departments, as well as with partner organisations, help ensures a strategic approach to improve air quality and quality of life, especially for those living near busy roads and junctions. Aligning Action Plans with LTPs is also good practice, and will need partnership working in two-tier areas such as Colchester.

Traffic management, traffic flow control and access control for the most polluting vehicles are all methods to reduce air pollution from transport.

Actions	Detail	Delivery Lead	Air Quality Impact	Cost	Timescale
Consideration of a Clean Air Zone	As part of LES, Colchester Borough Council carried out emissions modelling to determine the effectiveness of a number of traffic interventions. Once the framework for 'Clean Air Zones' is released, a study will be carried out to determine whether emission based access controls using the nationally consistent approach would be feasible	Colchester Borough Council	High	High	Medium
Should a feasibility study not justify the full implementation of a Clean Air Zone, it would still be possible for Colchester Borough Council to apply to the Traffic Commissioners Office for a Traffic Regulation Condition to be applied to the licenses of all bus operators with services within the Town Centre area.					
Consider Air Quality during updates to strategic transport documents, such as the Essex LTP	Consideration of all aspects of transport during strategy development, including environmental impacts, and to continue to do so as required.	Essex County Council	Not quantified but improvements in air quality expected	N/A	TBC

Actions	Detail	Delivery Lead	Air Quality Impact	Cost	Timescale
Consider Air Quality as part of Local Highways Panel schemes.	Local Highway Panels are responsible for delivering highway schemes within their areas. All aspects of transport relating to proposed LHP schemes are to be considered during the scheme validation and prioritisation process	Essex County Council	Not quantified but improvements in air quality expected	N/A	TBC
Identify traffic 'bottlenecks'	Consult Council Refuse Drivers / Bus Operators & Taxi Drivers to identify bottlenecks	Colchester Borough Council	Not quantified but improvements in air quality expected	N/A	Short
Traffic Flow and Congestion management and monitoring through highways infrastructure improvements and the use of active technology, both autonomously and through the Essex Traffic Control Centre	Undertake monitoring and improvement of the highway network to ensure best operation through the use of information gathering and analysis technology, alongside highways infrastructure improvements to enhance the network and technology to actively manage traffic flows.	Essex County Council	Not quantified but improvements in air quality expected	N/A	TBC
Traffic Flow and Parking Surveys	Work with Colchester Borough Council and the North Essex Parking Partnership on matters relating to parking and enforcement within the borough in the interests of highway safety, traffic flow and congestion management. Monitoring of the network to identify issues and opportunities for network enhancements	Essex County Council	Not quantified but improvements in air quality expected	N/A	TBC

Public Health

Principle 2 – Public Health Engagement

Local Authorities in England should work closely with local Directors of Public Health and 'Health and Wellbeing' boards. Working in partnership will increase support for measures to improve air quality and provide opportunities for funding.

Actions	Details	Delivery Lead	Air Quality Impact	Cost	Timescale
Health Impact Assessment	To carry out a Health Impact Assessment to understand the health impacts of air pollution within Colchester	Essex County Council	No direct impact on air quality	Medium	TBC
Health Impact Assessment	To carry out a Health Impact Assessment to provide an evidence base for a Clean Air Zone feasibility study	Essex County Council	No direct impact on air quality	Medium	TBC
Joint Strategic Needs Assessment	To ensure the Joint Strategic Needs Assessment has up to date pollution data and information about the impact of air quality impact on health	Essex County Council	No direct impact on air quality	Medium	TBC
Policy influence	Raising awareness of Air Quality within Public Health to be able to influence transport policy at County Council level	Colchester Borough Council	Not quantified but improvements in air quality expected	N/A	Medium

Raising Awareness

Principle 3- Raise Awareness of Air Quality

Colchester Borough Council will through the use of technology, employ an air quality forecasting system to predict pollution episodes and to alert the public, health authorities and business.

An air quality forecasting system will enable people to change their behaviours to reduce exposure and also their contribution to pollution. This is particularly important for vulnerable members of society, such as the young, the elderly and those that may have heart or lung conditions.

Actions	Details	Delivery Lead	Air Quality Impact	Cost	Timescale

Provision of an air quality forecasting service and alert system to provide information to residents, healthcare providers and local business.	• Pollution Forecasting
	• Pollution Alerts
	  ○ Air Quality Alerts by SMS text / email / voicemail sent directly to subscribers
	  ○ Air Quality alerts tweeted
	  ○ Emails to local GP's
	  ○ Emails to Public Health
	  ○ Emails to Colchester Hospital University Foundation Trust
	  ○ Emails to Colchester A&E
	  ○ Emails to local business
	• Daily Health Bulletins
		Colchester Borough Council	No direct impact on air quality	Low	Short

Knowledge sharing	• To work with other members of Essex Air to raise awareness of air quality across Essex	Colchester Borough Council	No direct impact on air quality	N/A	Ongoing

Council Operations

Principle 4 – Integrate Air Quality into Council Policies

Following development of the Low Emission Study, Colchester Borough Council will integrate air quality within its policies, procedures and operations.

Action	Detail	Delivery Lead	Air Quality Impact	Cost	Timescale
Low Emission Strategy	Formally adopt and implement	Colchester Borough Council	Medium	Low	Short
Air Quality & Emissions Technical Planning Guidance	Formally adopt and implement	Colchester Borough Council	High	N/A	Short
Local Plan	Ensure the integration of Air Quality as a core component of the new Local Plan 2017-2032	Colchester Borough Council	Medium	N/A	Medium
Procurement	Inclusion of a sustainable award criteria into the procurement strategy relating to the tender evaluation of goods and services	Colchester Borough Council	Low	N/A	Short
Public Service Vehicles	• When buying or leasing vehicles for use in the public sector, the vehicle specifications shall conform to Best Practice standards for emissions. • Identify potential uses of telematics, automatic routing and other innovations to reduce fuel consumption and emissions • Setting targets for fuel consumption and performance monitoring against the target	Colchester Borough Council	Medium	High	Medium

Action	Detail	Delivery Lead	Air Quality Impact	Cost	Timescale
Taxis	• **Examine whether the licensing standard can be based on vehicle age or emissions (linked to Euro Standards)** • **Require taxis to turn off engines when idling in the AQMAs** • **Explore whether the creation of exclusive LEV/ULEV 'green' taxi bays would be feasible** • **Explore whether the creation of rapid charging facilities for ULEV taxis**	**Colchester Borough Council –**	**Not quantified but improvements in air quality expected**	**N/A**	**Medium**

Principle 5 – Continues Assessment of Colchester's Air Quality

Colchester Borough Council will monitor local air quality to ensure that targeted improvements are being met.

To ensure that the Air Quality Action Plan remains relevant, it must reflect road use and changing traffic patterns, and from time to time it may be necessary to carry out traffic surveys and update source apportionment work.

Actions	Detail	Delivery Lead	Air Quality Impact	Cost	Timescale
Air Quality Monitoring	To carry on monitoring air quality at appropriate locations across the Borough	Colchester Borough Council (Environmental Protection)	N/A	N/A	Ongoing
Management and Enforcement of Environmental Permits	Ensure that point source industrial emissions are minimised through the Environmental Permitting process	Colchester Borough Council Environment Agency	Medium	N/A	Ongoing
Statutory Reporting	To compile an annual status report of air quality within the Borough	Colchester Borough Council	No direct impact on air quality	N/A	Ongoing
Air Quality Action Plan	To hold Air Quality Steering Group meetings biannually and to review and refine Action Plan measures	Colchester Borough Council	No direct impact on air quality	N/A	Ongoing
Low Emission Strategy	To maintain the Low Emission Strategy and implement the objectives that the strategy sets out.	Colchester Borough Council	Medium	N/A	Medium

Principle 6 – Reduce Emissions from Personal Car Use

Investing in walking and cycling can help bring about a modal shift away from use of private vehicles, thereby reducing emissions of relevant air pollutants. There are also co-benefits in encouraging cycling by way of health benefits.

In addition to encouraging a modal shift, **studies** have shown that the personal exposure reduction can be possible by altering commuting routes in the urban environment.

Schemes should be designed to reduce emissions from personal car use. This might be from encouraging a change to the modality of transport or by using policy to discourage use.

Actions	Detail	Delivery Lead	Air Quality Impact	Cost	Timescale
Reducing personal car use	• Encourage Park & Ride use • Further Investment in walking and cycling infrastructure • Encourage walking and cycling over car use • Promotion of Park & Walk scheme to encourage the uptake of small satellite car parks	Colchester Borough Council	High	High	Long
Travel Plan	Attract new companies to the scheme	Travel Plan Group	Low	N/A	Ongoing
Reduction of Town Centre Off Street Parking Spaces	Following the introduction of the Park & Ride, it will be necessary to reduce the number of off street parking spaces available within the town centre to encourage reductions in personal car use	Colchester Borough Council	Medium	Medium	Long
Car Sharing Scheme	Further promotion of the Essex Car Share scheme	Essex County Council Colchester Borough Council	Low	N/A	Ongoing

Action	Detail	Delivery Lead	Air Quality Impact	Cost	Timescale
Love Ur Car Scheme	The car share permit scheme aims to expand with the introduction of more car share spaces. The website gives useful fuel saving tips and driving information	Colchester Borough Council	Not quantified but improvements in air quality expected	N/A	Ongoing
Implementation of the Colchester Cycling Delivery Strategy	Improvements to cycling infrastructure	Colchester Borough Council	Medium	Medium	Medium
Personal exposure reduction	• Promotion of reduced pollution walking routes. The walkit.com platform has been identified as a suitable method of mapping reduced exposure urban walking routes • Publish online leaflet – how to reduce exposure to air pollution - general tips	Colchester Borough Council	Medium	Medium	Medium

Principle 7 – Low Emission Passenger Transport

Significant amount of work has been carried out to retrofit buses and to reduce 'dead mileage' within the Town Centre area. However the following measures have been identified to reduce emissions and improve the operation of the passenger transport network.

Actions	Detail	Delivery Lead	Air Quality Impact	Cost	Timescale
Upgrade of fleet to Euro VI	Voluntary agreement for major upgrade of operating fleet	Local Bus Operators	High	High	Medium
Retrofit Euro III with SCT and particulate filters	Voluntary agreement to retrofit Euro III where financially viable	Local Bus Operators	Medium	High	Medium
Note: although voluntary measures, upgrades could be encouraged by Clean Air Zone intervention					
Promotion of PLUSBUS	PLUSBUS is a cheap travel card that is purchased with a train ticket at any National Rail station ticket office or online. It allows unlimited bus travel (on participating operator's service) around the whole urban areas of the town. This aims to simplify commuting by public transport	Colchester Borough Council	Not quantified but improvements in air quality expected	N/A	Short
Consider the use of electric buses for the Colchester Park & Ride	Investigate options for electric / Hybrid / ULEV Park & Ride buses at the appropriate point in the Park & Ride Bus Service contract renewal process, and to consider options that may be viable within the current Park & Ride Bus Service contract period	Essex County Council	Medium	Medium	Medium
Encourage the reporting of excessively smoky buses to the Driver and Vehicle Standards Agency (DVSA).	Through the Colchester Borough Council website promote the DVSA Smoky Vehicle Reporting Service	Colchester Borough Council	Low	Low	Short

Principle 8 – Low Emission Freight & Logistics

Freight and logistics networks are primarily based on larger diesel based vehicles. Development of engine technologies such as retrofitting with selective catalytic reduction units and compressed natural gas in heavy goods vehicles is ongoing however it is felt that improvements to the routing and the road network are more appropriate.

Actions	Detail	Delivery Lead	Air Quality Impact	Cost	Timescale
HGV Routing Strategy	Undertake monitoring of the Highway network to ensure best operation, including through designation of and ongoing updates to preferred HGV routes, and work with all relevant parties as required to maintain and improve the route network.	Essex County Council	Not quantified but improvements in air quality expected	Low	Ongoing
Identify locations where freight is not following Strategic Routes due to GPS routing systems not being updated	Where problem locations are identified, update information with Ordnance Survey and sat-nav routing suppliers to manage truck movements on local roads	Colchester Borough Council	Not quantified but improvements in air quality expected	Low	Medium
Encourage the reporting of excessively smoky lorries to the Driver and Vehicle Standards Agency (DVSA).	Through the Colchester Borough Council website promote the DVSA Smoky Vehicle Reporting Service	Colchester Borough Council	Low	Low	Short
Connect with an fleet recognition scheme that encourages environmental operating measures	Fleet recognition schemes offer haulage and freight fleet operator's services such as routing advice and fuel efficiency improvements to limit emissions. The Council will explore opportunities to bring an existing scheme to the area.	Colchester Borough Council	Medium	High	Long

Planning and Development

Principle 9 – Reducing the Impact of Development upon Air Quality

Planning policies should sustain compliance with and contribute towards EU limit values or national objectives for pollutants, taking into account the presence of Air Quality Management Areas and the cumulative impacts on air quality from individual sites in local areas. The following measures have been developed to create an infrastructure suitable for a ULEV society.

Actions	Details	Delivery Lead	Air Quality Impact	Cost	Timescale
Create an electric vehicle charging infrastructure in residential, commercial, retail and industrial developments to encourage the use and uptake of ULEV vehicles	Planning conditions for all new developments to be applied at the specified provision level.	Colchester Borough Council	High	N/A	Ongoing
Mitigating the impacts of new developments on air quality	• Default mitigation to be applied to minor and medium development • Monitored travel plans • Default mitigation and ICGB damage costs to be applied to major development	Colchester Borough Council	High	N/A	Ongoing
New Biomass Installations	Mitigation & damage costs to be considered as part of the developmental process	Colchester Borough Council	Low	N/A	Ongoing
New CHP Installations (Combined Heat & Power) Plants	Mitigation & damage costs to be considered as part of the developmental process	Colchester Borough Council	Low	N/A	Ongoing
Encourage emission neutral developments	Future housing may be developed within 'Garden Cities' communities with a requirement to focus on sustainable concepts	Colchester Borough Council	Not quantified but improvements in air quality expected	N/A	Long

Principle 10 – Reducing Exposure to Air Pollution

The following measures have been identified as important levers to reducing exposure to air pollution.

Actions	Details	Delivery Lead	Air Quality Impact	Cost	Timescale
Prevent new developments from creating street canyons	Colchester has a large number of roads which can be classified as a street canyon. These locations are not as well ventilated as open locations. Reduced dispersal of pollutants will result in increased concentrations. Future development should not create new street canyons in highly trafficked locations	Colchester Borough Council	Medium	N/A	Ongoing
Campaign to Central Government	Campaign for the creation of a low emission, diesel free economy	Colchester Borough Council	Medium	N/A	Medium
Require best practice guidance to be followed for demolition / construction sites	Require a mitigation statement that includes a demolition / construction management plan	Colchester Borough Council	Low	N/A	Ongoing

AQMA Specific Measures

AQMA 1 – Central Corridors

AQMA 1 has been designated in relation to breaches of the Nitrogen Dioxide (NO_2) annual mean objective and likely breaches of the hourly mean objective.

This area includes the High Street, Head Street, North Hill, Queen Street, St. Botolph's Street, St. Botolph's Circus, St. John's Street, Osborne Street, Magdalen Street, Military Road, Mersea Road, Brook Street, East Street and St John's Street.

Action	Delivery Lead	Detail	Air Quality Impact	Cost	Timescale
Review the phasing of traffic signals on entries to Colchester Town Centre	Essex County Council	Consider alterations to traffic signals within the Town Centre area with a view to facilitating improved traffic flow, reducing congestion and providing priority for sustainable transport modes	Not quantified but improvements in air quality expected	Medium	TBC
Provide attractive sustainable transport solutions to help cater for demand for longer-distance travel to the town centre	Rail Franchisee	Station improvements to encourage the use of Colchester and Colchester Town train station	Medium	High	Ongoing

Action	Detail	Delivery Lead	Air Quality Impact	Cost	Timescale
Fixing the Link Project	Walking route improvements between the Town Centre and Colchester Station	Station Travel Plan Partners	Not quantified but improvements in air quality expected	High	Long
Improvements to real-time transport information displays	Real-time displays will be installed and implemented across a number of locations within Colchester	Essex County Council	Not quantified but improvements in air quality expected	High	Short
Provision of appropriate Highway signage within and around the town centre area	Continue to review and update signage within the town on an ongoing basis, in order to provide route signage and priority for sustainable transport modes where practicable, and manage traffic flows and congestion appropriately.	Essex County Council	Medium	High	Ongoing

AQMA 2 – East Street and the adjoining lower end of Ipswich Road

AQMA 2 has been designated in relation to breaches of the Nitrogen Dioxide (NO_2) annual mean objective.

The area incorporates roads surrounding the junction of East Street with Ipswich Road. These roads are narrow, contain residential properties and in places can be defined as street canyons.

The roads are designated by Essex County Council as Priority Route Two secondary distributor roads which perform an essential traffic management distributory function between local network and Priority Route One.

There are no actions specific to AQMA 2, however the measures introduced by the core principles and dedicated measures for AQMA 1 are expected to contribute to compliance within this AQMA.

AQMA 3 – Harwich Road and the St Andrews Avenue junction

AQMA 3 has been designated in relation to likely breaches of the Nitrogen Dioxide (NO2) annual mean objective.

The area contains a double roundabout junction for the Priority Route One strategic route of St Andrews Avenue and the Harwich Road which is a Priority Route One radial feeder road on the east side of the junction and Priority Route Two secondary distributor classification on the west side.

Monitoring results reported by the **Colchester Updating & Screening Assessment 2015** have identified that since 2012 concentrations at CBC76 within the AQMA have been 15% below the 40µg/m3 objective.

Subject to further monitoring results, the intention is to revoke this AQMA.

Action	Delivery Lead	Detail	Air Quality Impact	Cost	Timescale
Further Air Quality Monitoring	Colchester Borough Council	Increase diffusion tube placement at the point of relevant exposure	No direct impact on air quality	N/A	Short
Revoke AQMA 3	Colchester Borough Council	When improved monitoring identifies that exceedances are not likely to occur, then the AQMA can be revoked.	N/A	N/A	Medium

AQMA 4 - Lucy Lane North, Stanway

AQMA 4 has been designated in relation to breaches of the Nitrogen Dioxide (NO_2) annual mean objective.

Lucy Lane is intersected by the A12 Trunk Road and the AQMA is sited in Lucy Lane North. This covers residential properties within the vicinity of the east-bound carriageway of the A12.

Highways England maintains the A12 and has indicated that a reduced speed limit along the section of road neighbouring the AQMA would not be feasible. However, the installation of acoustic barriers which have been **found** to reduce pollution on the lee-ward side could be considered alongside forthcoming improvement works.

Action	Delivery Lead	Detail	Air Quality Impact	Cost	Timescale
Increased monitoring	Colchester Borough Council Air Quality	Increase diffusion tube placement at the point of relevant exposure	N/A	No direct impact on air quality	Short
Acoustic Barriers	Highways England	Highways England to consider the installation of a 4metre acoustic barrier alongside the northern boundary of the A12 with the purpose of reducing noise impact and improving air quality at the adjacent receptors.	High. **Studies** have shown that the average impact for nitrogen dioxide is a 14% reduction at 10metres from the barrier. This reduction is in the order of what is required to achieve compliance.	High	Long

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Measure Evaluation and Feasibility

The focus of this action plan is to reduce emissions and exposure to emissions. Some measures such as specific traffic management improvements lend themselves to detailed quantifiable analysis in terms of emission reductions.

Accurately quantifying the effectiveness of the majority of emission reduction measures is not possible due to inherent assumptions and uncertainties. In these instances grading cost, perceived air quality impacts and timescales to a low, medium and high rating is more effective.

Table 4 Air Quality Impact Rating

Rating	Impact
No direct impact on air quality	The measure doesn't have a direct impact on air quality however may inform strategy, policy making or introducing funding or charging mechanisms
Not quantified but improvements in air quality expected	The measure can't be quantified due to assumptions and uncertainties
Low	Action focused on a small proportion of sources contributing to an exceedance
Medium	A local or strategic measure that will reduce either emissions
High	A local or strategic measure that significantly reduces either emissions or exposure and is measurable

Table 5 Cost Rating

Rating	Cost
N/A	To be met by existing budgets
Low	Up to £5,000
Medium	£5,000 to £50,000
High	Greater than £50,000

Table 6 Timescale Rating

Rating	Timescale
In Progress	Measure started
Completed	Measure completed
Ongoing	Ongoing measure to be carried out with no specific deadline
Short	Completion expected within 12 months
Medium	Completion expected within 1 and 3 years
Long	Completion expected to take longer than 3 years

A number of factors have been considered when selecting measures for the Air Quality Action Plan:

- Alignment with strategic initiatives such Local Transport Plan, Local Plan
- Availability of enabling legislation
- Funding opportunities
- Measure delivery program
- Opportunities to build on existing programmes such as carbon management plans and Public Health initiatives

Barriers to Improved Air Quality

Until the mid-1990's diesel cars made up less than 10% of the private car fleet but following the Kyoto Protocol agreement and the requirement for signatory countries to reduce CO_2 emissions by an average of 8% over 15 years, the Government introduced diesel incentives through schemes such as vehicle excise duty and company car taxation.

The result of these incentives was that the diesel section of private car fleet grew to over 50% by 2014. Despite overwhelming evidence that diesel is significantly contributing to air pollution, current Government policy has not yet changed to discourage these vehicles.

In 2014 evidence emerged to suggest that Euro 6 diesel cars were **not** necessarily performing in line with their relevant Euro standards. This was followed in 2015 by media revelations that 'cheat' devices existed in some vehicles enabling low emissions during type approval test cycles but significantly higher emissions during real-world driving. With diesel cars underperforming in such a way, the NO_2 fraction in the NO_x exhaust emissions has **increased** causing the primary NO2 emissions to increase and air quality improvement projections have failed to become reality.

In 2015 and early 2016 diesel prices have fallen below petrol. These lower prices have provided further incentives for consumers to purchase and run diesel vehicles.

Figure 20 Petrol & Diesel Prices (Photo dated 9th January 2016)

Other developments such as the **Short Term Operating Reserve** (STOR) infrastructure programme is seen a future complication that will affect authorities ability to manage air quality.

Tier two local authorities who are required to carry out the Local Air Quality Management process are not always best placed to remediate transportation issues. Transportation and highways management are the responsibility of tier one authorities.

Delivery of the aims contained within the Air Quality Action Plan requires the assistance of partner organisations, whom are subject to their own financial, policy and timescale considerations, so close partnership working will be required to overcome the challenges set by the Air Quality agenda.

Funding Mechanisms

Local Authorities are in a funding situation where there is barely enough to fulfil minimum statutory duties. Development and implementation of viable measures to improve air quality can require large budgets.

The staffing costs of measures detailed in the Air Quality Action Plan will be met from existing budgets.

Colchester Borough Council may use capital spending plans on identified strategic measures

The updated planning guidance will bring in contributions via the development system:

- Section 106 Agreements
- Community Infrastructure Levy (CIL)
- **ICGB Damage Costs** applied as mitigation
- Electric vehicle charging infrastructure provided as mitigation
- Air Quality Impact Assessments where required

Partnership working is an important way for Local Authorities to provide efficient and effective services:

Essex County Council Funding:

- Local Transport Plan
- Public Health
- Local Highways Panel

South East Local Enterprise Partnership (SELEP)

The Council will examine the following grant funding opportunities:
Defra Funding:

- Air Quality Grants
- Clean Air Zones scoping study funding

DFT Funding:

- Clean Bus Technology Fund (CBTF)
- Local Sustainable Transport Fund (LTSF)

The Office for Low-Emission Vehicles (OLEV) key schemes:

- **Plug-in Car Grant**
- **Go *Ultra Low* communications campaign**
- **Go *Ultra Low* Cities Scheme**
- **Ultra-Low Emission Taxis Support**
- **Chargepoint Infrastructure Funding**
- **Funding for initial hydrogen re-fuelling network**
- **Research and development**
- **ULEV Readiness programme**

Implementation of a Clean Air Zone could create the potential for a direct charging mechanism for vehicles that don't meet the set class

Dropped Measures

Action	Detail	Reason for dropping the measure
NRMM (Non Road Mobile Machinery)	Require developments in AQMA areas to use Low Emission NRMM (Like London NRMM LEZ)	Practical & Resource Issues with Inspection
Reduce emissions from vehicles	Apply to the Secretary of State to become a designated authority to issue fixed penalties under the Road Traffic (Vehicle Emissions) (Etc) Regulations 2002	Practical & resource Issues with Inspection
Reduce emissions from idling buses	Bus operators can monitor idling vehicles through telemetry. Agreement to produce a quarterly report	Some buses in operation have selective catalytic reduction units installed. Turning the engine off at idle may cause exhaust temperatures to become too cool for NOx reduction to occur.
Reduce emissions from idling buses	Voluntary agreement to switch off vehicle engines when stationary	Some buses in operation have selective catalytic reduction units installed. Turning the engine off at idle may cause exhaust temperatures to become too cool for NOx reduction to occur. Enforcement difficulties
Speed limit reduction on the A12 adjacent to AQMA 4	Studies have found that reduced speed limits can cut air pollution	Highways England advised that this measure may not be feasible
Freight consolidation hubs with ULEV deliveries service–	Utilisation of Ultra Low Emission Vehicles to provide ‘Last Mile Deliveries’ from a central freight consolidation hub	Implementation would require a suitable site and private funding. Delivery of a scheme would be more appropriate through Transport for Colchester.

Glossary

AQMA	Air Quality Management Area
AQS	Air Quality Strategy
AQSG	Air Quality Steering Group
CAZ	Clean Air Zone
CBC	Colchester Borough Council
CBTF	Clean Bus Technology Fund
CO_2	Carbon Dioxide
CVTF	Clean Technology Vehicle Fund
DEFRA	Department for the Environment, Food and Rural Affairs
DfT	Department for Transport
ECC	Essex County Council
Euro Standard	European Emission Standard
HDV	Heavy Duty Vehicle, i.e., all vehicles more than 3.5t including HGV
HGV	Heavy Goods Vehicles
JSNA	Joint Strategic Needs Assessment
LAQM	Local Air Quality Management
LDF	Local Development Framework
LDV	Light Duty Vehicles
LGV	Light Goods Vehicles
LES	Low Emission Strategy
LEZ	Low Emission Zone
LTP	Local Transport Plan
NHS	National Health Service
NO	Nitric Oxide
NO_2	Nitrogen Dioxide
NOx	Nitrogen Oxides
NPPF	National Planning Policy Framework
ONS	Office for National Statistics
PH	Public Health
PHE	Public Health England
PM	Particulate Matter
$PM_{2.5}$	Particulate Matter less than 2.5 microns in size
PM_{10}	Particulate Matter less than 10 microns in size
$\mu g/m^3$	Micrograms per metre cubed
SCOOT	Split Cycle Offset Optimisation Technique
SCRT	Selective Catalytic Reduction Technology
SELEP	South East Local Enterprise Partnership
STOR	Short Term Operating Reserve
Street Canyon	Road which is flanked by buildings resembling a canyon
ULEV	Ultra-Low Emission Vehicle (Emits no more than 75g/km CO_2)

References

airTEXT http://www.airtext.info/

Cambridge Environmental Research Consultants Base Line Emissions Study for Colchester Borough Council's Low Emission Strategy (2014)
http://www.essexair.org.uk/Reports/Colchester_Baseline_Emissions_Study_14_02_2014.pdf

Cambridge Environmental Research Consultants Base Line Emissions Study for Colchester Borough Council's Low Emission Strategy – Future Emissions Scenarios (2015)
http://www.essexair.org.uk/Reports/Colchester_Baseline_Emissions_Future_17_06_2014.pdf

Cambridge Environmental Research Consultants Source Apportionment of NO_x emissions for the Borough of Colchester (2014)
http://www.essexair.org.uk/Reports/Colchester_SourceApportionmentStudy_21_02_2014.pdf

Colchester Borough Council Air Quality Action Plan 2007

http://aqma.defra.gov.uk/action-plans/CBC%20AQAP%202007%20Draft.pdf

Colchester Borough Council Cycling Delivery Strategy (2012)
http://www.colchester.gov.uk/CHttpHandler.ashx?id=12333&p=0

Colchester Borough Council Interim Air Quality Action Plan (2013)

Colchester Borough Council Annual Monitoring Report (2014)
http://www.colchester.gov.uk/CHttpHandler.ashx?id=16787&p=0

Colchester Borough Council LAQM Progress Report (2014)
http://www.essexair.org.uk/Reports/Colchester_Progress_Report_2014.pdf

Colchester Borough Council Low Emission Strategy (2015)
http://www.essexair.org.uk/Reports/Colchester_Low_Emission_Strategy.pdf

Colchester Borough Council Procurement Strategy (2015)
http://www.essexair.org.uk/Reports/Colchester_Low_Emission_Strategy.pdf#page=65

Colchester Borough Council (Air Quality & Emissions) Technical Planning Guidance (2015)
http://www.essexair.org.uk/Reports/Colchester_AQ_Emissions_Technical_Planning_Guidance.pdf

Colchester Borough Council Updating & Screening Assessment (2015)
http://www.essexair.org.uk/Reports/Colchester_USA_2015.pdf

Colchester Borough Council Sustainability Appraisal Scoping Report Addendum – Garden Settlements Assessment Framework (2015)
http://www.colchester.gov.uk/CHttpHandler.ashx?id=18690&p=0

Colchester Borough Council Transport for Colchester
http://www.colchester.gov.uk/CHttpHandler.ashx?id=2621&p=0

Colchester Borough Council Travel to Work Patterns (2015) Report http://bit.ly/1P51qCh

Copert 4v11 (2014) http://emisia.com/products/copert-data

Defra Air Quality Economic Analysis (2015)
https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/460398/air-quality-econanalysis-damagecost.pdf

Defra Air Quality Plan for the achievement of EU air quality limit value for nitrogen dioxide (NO_2) in Easter (UK0029) (2015)
https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/486194/aq-plan-2015-eastern-uk0029.pdf
Defra Air Quality and Social Deprivation in the UK: an environmental inequalities analysis (2006) http://uk-air.defra.gov.uk/assets/documents/reports/cat09/0701110944_AQinequalitiesFNL_AEAT_0506.pdf
Defra Draft Air Quality Plans (2015) https://consult.defra.gov.uk/airquality/draft-aq-plans

Defra Impact pathway guidance for valuing changes in air quality (2013)
https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/197900/pb13913-impact-pathway-guidance.pdf

DfT Projects receiving Clean Vehicle Funding (2014)
https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/351527/cvtf-projects.pdf

Dutch Air Quality Innovation Programme concluded (2010)
http://laqm.defra.gov.uk/documents/Dutch_Air_Quality_Innovation_Programme.pdf

Driver and Vehicle Standards Agency (DVSA) Report a Smoky Vehicle
https://www.gov.uk/report-smoky-vehicle

Essex Air http://www.essexair.org.uk

Essex County Council – Colchester Park and Ride http://www.essexhighways.org/Transport-and-Roads/Highway-Schemes-and-Developments/Major-Schemes/Colchester-Park-and-Ride.aspx

Essex County Council - Colchester Northern Approach Road
http://www.essexhighways.org/Transport-and-Roads/Highway-Schemes-and-Developments/Major-Schemes/Northern-Approach-Road.aspx

ICCT Real-World Emissions from Modern Diesel Cars (2014)
http://www.theicct.org/real-world-exhaust-emissions-modern-diesel-cars

Local Air Quality Management Policy Guidance (PG09)
https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/69348/pb13566-laqm-policy-guidance-part4-090302.pdf

Local Air Quality Management Technical Guidance LAQM.TG(09)
https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/69334/pb13081-tech-guidance-laqm-tg-09-090218.pdf

Love Ur Car http://www.loveurcarcolchester.co.uk/

National Air Quality Objectives
https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/182392/air-quality-legally-binding-objective.pdf

National Grid Short Term Operating Reserve
http://www2.nationalgrid.com/uk/services/balancing-services/reserve-services/short-term-operating-reserve/

PLUSBUS http://www.plusbus.info/

PTEG Air Quality in the City Regions – A Transport Toolkit http://www.pteg.net/system/files/general-docs/Air%20quality%20toolkit%2011.08.14%20v2.pdf

Public Health England Local Health Data http://www.localhealth.org.uk/#z=535725,310624,148831,130079;sid=103;sly=ltla_2013_DR;v=map8;l=en

Reduction personal exposure to black carbon during commuting in London – A feasibility study (2015) http://erj.ersjournals.com/content/46/suppl_59/PA4090

Ricardo Euro III buses can be cleaner than Euro V hybrids if retrofitted with new after-treatment (2014) http://www.ricardo.com/Documents/PRs%20pdf/PRs%202014/Euro%20III%20retrofitted%20buses%20can%20be%20cleaner%20than%20Euro%20V%20hybrids.pdf

Swedish Environmental Research Institute – Report on the increasing levels of NO_2 in some cities (2010) http://www3.ivl.se/rapporter/pdf/B1886.pdf

Walkit.com http://walkit.com/

Appendix 1 – Air Quality Management Area Order

Environment Act 1995 Part IV Section 83(1)

Colchester Borough Council
Air Quality Management Order

Colchester Borough Council, in exercise of the powers conferred upon it by section 83 (1) of the Environment Act 1995, hereby makes the following order.

This order may be cited/referred to as the Colchester Borough Council Air Quality Management Areas Numbers 1, 2, 3 and 4.

Area 1 - Central Corridors

Area 2 - East Street and the adjoining lower end of Ipswich Road.

Area 3 - Harwich Road/ St. Andrew's Avenue junction.

Area 4 - Lucy Lane North, Stanway.

And shall come into effect on 26 February 2013

The areas shown on the attached maps in red are to be designated as air quality management areas (the designated areas). The designated areas incorporate (either fully or in part):

Area 1 -

High Street Colchester, Head Street, North Hill, Queen Street, St. Botolph's Street, St. Botolph's Circus, Osborne Street, Magdalen Street, Military Road, Mersea Road, Brook Street, East Street and St Johns Street.

Area 2 –

East Street and Ipswich Road

Area 3 –

St. Andrew's Avenue and Harwich Road

Area 4 –

Lucy Lane North, Stanway.

Continued...

Area 1 is designated in relation to a likely breach of the nitrogen dioxide annual mean and hourly mean objectives as specified in the Air Quality Regulations 2000.

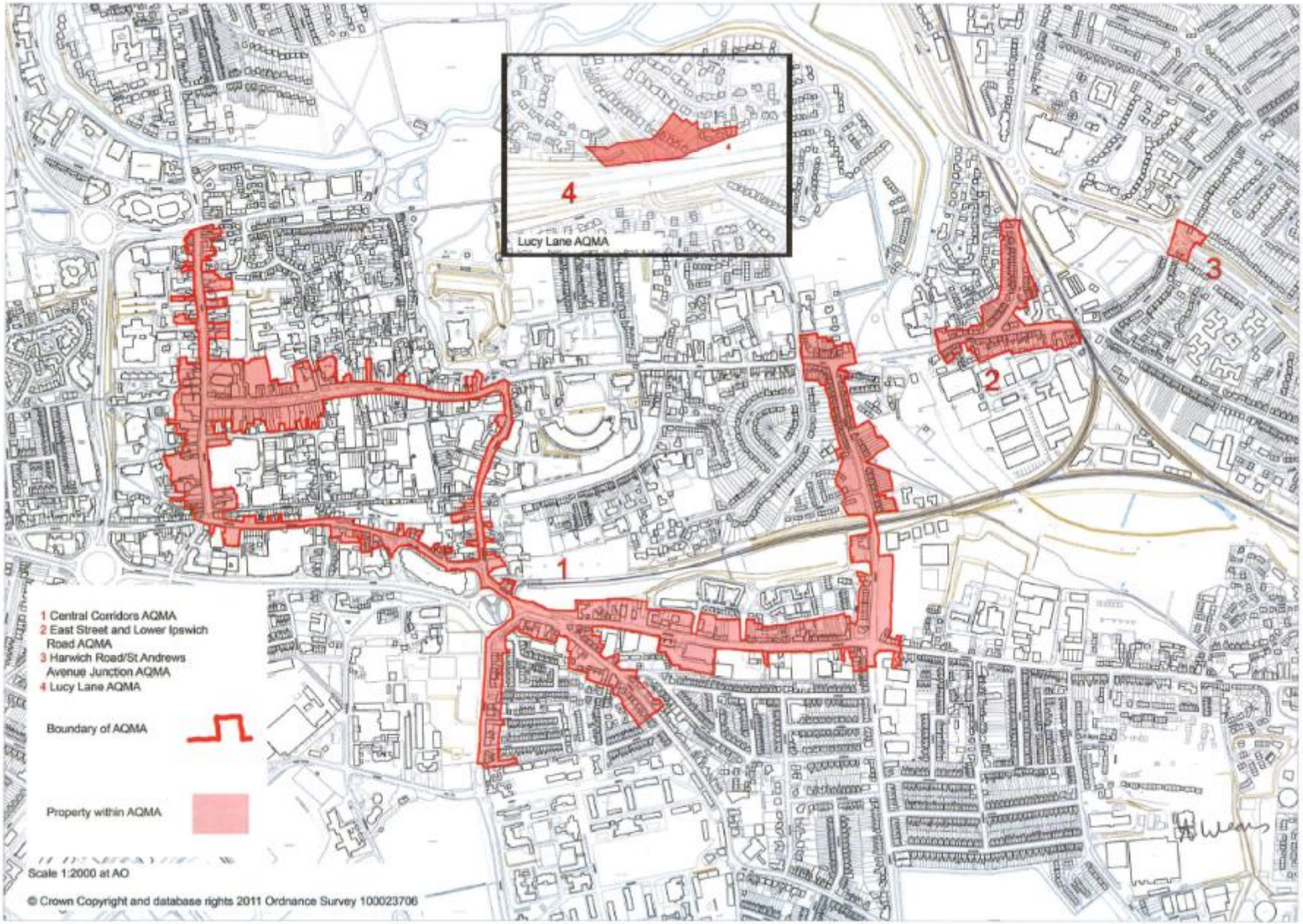
Areas 2, 3 and 4 are designated in relation to a likely breach of the nitrogen dioxide annual mean objective as specified in the Air Quality Regulations 2000.

This Order shall remain in force until it is varied or revoked by a subsequent order.

The common seal of
Colchester Borough Council
was hereunto affixed in the presence of:

Authorised signatory

6013


4
Lucy Lane AQMA
3
2
1
1 Central Corridors AQMA
2 East Street and Lower Ipswich Road AQMA
3 Harwich Road/St Andrews Avenue Junction AQMA
4 Lucy Lane AQMA
Boundary of AQMA
Property within AQMA
Scale 1:2000 at AO
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Appendix 2

Deaths from respiratory diseases, all ages, standardised mortality ratio, 2008-2012

Theme(s): T4 - Life Expectancy and Causes of Death

Geographic levels: Ward (2013)

Source: Public Health England, produced from ONS data © Copyright 2013
http://www.localhealth.org.uk/#l=en;v=map4

Unit : SMR

Definition: Standardised mortality ratio for deaths from all respiratory disease at all ages

Methodology:

Mortality data by sex and five-year age group were extracted from annual files supplied to Public Health England (PHE) by the Office for National Statistics (ONS). These were deaths registered in the calendar years 2008-12. Deaths were allocated to the deceased's output area (OA) of usual residence using the November 2013 version of the National Statistics Postcode Lookup. Deaths from all respiratory disease included, ICD 10 codes J00-J99. Population data are experimental mid-year population estimates for OAs, by sex and quinary age group, supplied by ONS. Counts from 2008-12 were aggregated to higher geographies using standard geographical lookup tables obtained from ONS Geography. Expected deaths calculated by applying age-specific death rates for England in 2008-12 to each area's population. SMRs calculated by dividing the observed total deaths in the area by the expected deaths and multiplying by 100.

Confidence Limits:

Confidence limits provide an indication of the reliability of a result. The 95% confidence intervals provide a range within which there is 95% chance of the true result lying. Confidence intervals were calculated using Byar's Method as described in APHO Technical Briefing 3: Commonly used public health measures and their confidence intervals. (http://www.apho.org.uk/resource/view.aspx?RID=48457)

Rounding / Suppression / Disclosure Control:

No suppression required. Standardised mortality ratios rounded to 1 decimal place.

Rationale:

Mortality is a direct measure of health care need indicating the overall respiratory disease burden on the population and reflecting both the incidence of disease and the ability to treat it.