# Rayleigh Town Centre

## Air Quality Action Plan Report

April 2017

## Document Control Sheet

Document prepared by:

James Browne
Air Quality Consultant

1180 Eskdale Road
Winnersh
Wokingham
RG41 5TU

**T** 0118 946 8424
**E** James.Browne@jacobs.com
**W** www.essex.gov.uk/highways

| | |
|---|---|
| **Report Title** | Rayleigh town centre Air Quality Action Plan Report |
| **Project Number** | B3553P09 |
| **Status** | Final |
| **Revision** | 6 |
| **Control Date** | 03/04/2017 |

Record of Issue

| Issue | Status | Author | Date | Check | Date | Review | Date |
|---|---|---|---|---|---|---|---|
| 1 | Draft | J Browne | 02/06/16 | MC | 02/06/16 | MC | 02/06/16 |
| 2 | Draft | J Browne | 10/06/16 | MC | 10/06/16 | MC | 10/06/16 |
| 3 | Draft | J Browne | 26/09/16 | MC | 26/09/16 | MC | 26/09/16 |
| 4 | FDC | J Browne | 21/11/16 | MC | 21/11/16 | MC | 21/11/16 |
| 5 | Final | J Browne | 21/02/17 | MC | 21/02/17 | MC | 21/02/17 |
| 6 | Final | J Browne | 03/04/17 | HP | 03/04/17 | HP | 03/04/17 |

| Approved for Issue By | Date |
|---|---|
| Chris Beverley | 03/04/17 |

Distribution

| Organisation | Contact | Number of Copies |
|---|---|---|
| Rochford District Council | M Howlett | 1 |
| Essex County Council | B Gould | 1 |

| | | |
|---|---|---|
| Essex County Council | A Buston | 1 |

# Contents



# Figures

# Executive Summary

Jacobs' Air Quality team working on behalf of Essex County Council (ECC) received a request from Martin Howlett of Rochford District Council (RDC) to provide air quality consultancy services to support the delivery of an Air Quality Action Plan (AQAP) for RDC's Rayleigh Air Quality Management Area (AQMA). This AQMA was declared for exceedences of the annual mean nitrogen dioxide ($NO_2$) AQO (40 $\mu g/m^3$) in 2015 and covers a number of roads within Rayleigh town centre and towards the A127. This report outlines the action that RDC and ECC will pursue to improve air quality and in pursuit of the revocation of Rayleigh AQMA.

Several sources of baseline information were used to inform and to develop the AQAP. These were as follows:

1. RDC air quality reporting;
2. Local and regional planning policy documents;
3. Previous air quality and traffic source apportionment studies;
4. Two steering group meetings; and
5. Stakeholder Consultation.

The actions that RDC will implement are located within tables 5 - 10 of the AQAP. Each measure has a Key Performance Indicator, the quantification of concentration reduction and achievement date. These measures fall into the following categories:

1. Monitoring;
2. Traffic management;
3. Sustainable travel;
4. Planning development and policy control;
5. Low emission vehicles; and
6. Raising awareness of air quality.

RDC expects the area to meet the annual mean $NO_2$ AQO by 2018 with compliance required for three years to support the revocation of the AQMA. The AQAP is presented in Appendix A.

# 1 Introduction

Jacobs' Air Quality team working on behalf of Essex County Council (ECC), as part of the Ringway Jacobs Essex Highways partnering contract, received a request from Martin Howlett of Rochford District Council (RDC) to provide air quality consultancy services to support the delivery of an Air Quality Action Plan (AQAP) in support of the Air Quality Management Area (AQMA). An AQMA is declared where a local authority has identified an area which is unlikely to achieve the National Air Quality Objectives (AQO's).

This report outlines the action that RDC and ECC anticipate to deliver between 2016 and 2020 to improve air quality and pursue the revocation of Rayleigh AQMA.

## 1.1 Air Quality in Rayleigh

A Detailed Assessment was completed in 2011[1] with updates in 2013[2] and 2014[3] which showed that the annual mean $NO_2$ AQO was being exceeded at locations within Rayleigh, Essex. RDC declared an AQMA (Rayleigh AQMA) for exceedences of the annual mean Nitrogen Dioxide ($NO_2$) AQO (40 µg/m$^3$) in 2015. Rayleigh AQMA covers a number of roads within Rayleigh town centre and towards the A127 and is shown in figure 1.

[1] Air Quality Consultants (2011) Detailed Assessment of Air Quality in Rayleigh. May 2011
[2] Air Quality Consultants (2013) Update to Detailed Assessment of Air Quality in Rayleigh. February 2013
[3] Air Quality Consultants (2014) Rayleigh Detailed Assessment 2014 Update. March 2014

*Figure 1: Rayleigh AQMA Boundary*


Contains Ordnance Survey data © Crown copyright and database right 2017. Additional data sourced from third parties, including public sector information licensed under the Open Government Licence v1.0. Ordnance Survey licence number 100046099.

A number of elements were found to be contributing to the exceedance of the annual mean $NO_2$ AQO with congestion identified as the dominant cause of increased concentrations.

# 2 Methodology and baseline sources

Several sources of baseline information were used to inform and to develop the AQAP. These were as follows:

- Detailed Assessment of Air Quality in Rayleigh and its subsequent updates –
  - Assessment of existing local air quality conditions through a review of air quality monitoring data for the study area;
  - Analysis of the detailed assessment[2] carried out by RDC which found that the maximum annual mean $NO_2$ concentration for 2012 was 43.1 µg/m$^3$.
- The Core Strategy[4] and Rayleigh Centre Area Action Plan[5] –
  - Assessment of the policy in relation to air quality
- Two Steering Group meetings –
  - Members of the first meeting included RDC Environmental Health Department, and the ECC Transportation Planning and Development Team. The second meeting was also attended by district and county planning teams. Both meetings were supported by Jacobs and Air Quality Consultants Ltd.
- Stakeholder Consultation –
  - Once a draft report was produced, a copy was made available to local authorities, agencies, businesses and the local community for their comments and supporting information.

[4] http://www.rochford.gov.uk/planning/policy/local_development_framework/core_strategy_dpd1

[5] http://www.rochford.gov.uk/planning/policy/local_development_framework/rayleigh_area_action_plan

# 3 Results

Based on the information collated, it is anticipated that the annual mean AQO will be met at all relevant locations within Rayleigh AQMA by 2018. In order to manage the reduction in pollutant concentrations, measures are categorised into six areas with the aim of improving air quality within Rayleigh AQMA. The six areas are as follows:

1. Monitoring –
    - Enable the revocation of Rayleigh AQMA when appropriate;
2. Traffic Management –
    - Reduce congestion adjacent to relevant receptors;
3. Sustainable travel –
    - Reduce volume of vehicular traffic through Rayleigh AQMA;
4. Planning policy and development control –
    - Strengthen planning policies to avoid new residential development within Rayleigh AQMA, manage growth and support electric vehicle infrastructure;
5. Low emission vehicles –
    - Reduce emissions in Rayleigh AQMA and across the district; and
6. Raising awareness of air quality –
    - Raise awareness of issue, increase physical activity and management of symptoms.

Each measure has a Key Performance Indicator, the quantification of concentration reduction and achievement date. These can be found in the AQAP within Appendix A.

# 4 Conclusion

The AQAP has been developed with the primary aim to improve air quality within Rayleigh AQMA and in pursuit of the revocation of Rayleigh AQMA. It is anticipated that by 2018 the annual mean $NO_2$ AQO will be achieved at relevant locations and measures have been developed to deliver this.

# Appendices

# Appendix A: Rayleigh Air Quality Action Plan

Air Quality CONSULTANTS

# Air Quality Action Plan:
## Rochford District Council

April 2017

Experts in air quality management & assessment

## Document Control

| | | | |
|---|---|---|---|
| **Client** | Rochford District Council | **Principal Contact** | Martin Howlett |

| | |
|---|---|
| **Job Number** | J2545 |

| | |
|---|---|
| **Report Prepared By:** | Penny Wilson |

Document Status and Review Schedule

| Report No. | Date | Status | Reviewed by |
|---|---|---|---|
| J2545/1/F3 | 3 April 2017 | Final | Prof. Duncan Laxen (Managing Director) |



**Air Quality Consultants Ltd**
**23 Coldharbour Road, Bristol BS6 7JT Tel: 0117 974 1086**
**12 Airedale Road, London SW12 8SF Tel: 0208 673 4313**
**aqc@aqconsultants.co.uk**

Registered Office: 12 St Oswalds Road, Bristol, BS6 7HT
Companies House Registration No: 2814570

| | |
|---|---|
| Local Authority Officer | Martin Howlett |
| Department | Environmental Health Services |
| Address | Rochford District Council<br>Council Offices<br>South Street<br>Rochford<br>Essex<br>SS4 1BW |
| Telephone | 01702 318049 |
| E-mail | martin.howlett@rochford.gov.uk |

## Executive Summary

This Air Quality Action Plan (AQAP) has been produced as part of our statutory duties required by the Local Air Quality Management framework. It outlines the action we will take to improve air quality in the district of Rochford between 2016 and 2020, in particular within our Air Quality Management Area (AQMA), which we declared in Rayleigh in 2015.

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. There is also often a strong correlation with equalities issues, because areas with poor air quality are also often the less affluent areas[1,2].

The annual health cost to society of the impacts of particulate matter alone in the UK is estimated to be around £16 billion[3]. Rochford District Council is committed to reducing the exposure of people in Rochford to poor air quality in order to improve their health.

We have developed actions that can be considered under six broad topic headings:

- Monitoring
- Traffic Management
- Sustainable Travel
- Planning Policy and Development Control
- Low Emission Vehicles; and
- Raising Awareness

Our priorities are to; reduce congestion in areas where people live close to busy roads, reduce the volume of traffic within the AQMA and strengthen planning policies to avoid new residential development in the AQMA, manage growth and support electric vehicle (EV) infrastructure.

In this AQAP 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 standards 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 Rochford District Council's direct influence.

1 Environmental equity, air quality, socioeconomic status and respiratory health, 2010

2 Air quality and social deprivation in the UK: an environmental inequalities analysis, 2006

3 Defra. Abatement cost guidance for valuing changes in air quality, May 2013

## Responsibilities and Commitment

This AQAP was prepared by the Environmental Health Department of Rochford District Council in conjunction with Ringway Jacobs, with assistance from Air Quality Consultants Ltd. It has the support and agreement of officers in the following departments and other organisations:

- Rochford District Council Environmental Health Department;
- Essex County Council Transport Planning and Development Team;
- Rochford District Council Planning Policy Team;
- Essex County Council Spatial Planning Department;
- Essex County Council Public Health Department; and
- Sustrans.

This AQAP has been approved by:

The Portfolio Holder for Community and Housing, Rochford District Council

This AQAP will be subject to an annual appraisal of progress and reporting to members as appropriate. We will report progress each year in our Annual Status Reports (ASRs), as part of our statutory Local Air Quality Management duties.

If you have any comments on this AQAP please send them to Martin Howlett at Rochford District Council:

Telephone: (01702) 318049

Email: Martin.Howlett@Rochford.gov.uk

Address:

Environmental Health, Rochford District Council

Council Offices,

South Street,

Rochford,

Essex

SS4 1BW

## Contents



## Tables



## Figures

# 1 Introduction

1.1 This report outlines the actions that Rochford District Council and Essex County Council will deliver between 2016 and 2020 in order to reduce concentrations of air pollutants and exposure to air pollution within the Air Quality Management Area (AQMA); thereby positively impacting on the health and quality of life of residents and visitors to the district.

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

1.3 This Plan will be reviewed every five years at the latest and progress on measures set out within this Plan will be reported on annually within Rochford District Council's air quality Annual Status Report (ASR).

# 2 Summary of Current Air Quality in Rochford

New Text

## Rayleigh AQMA

2.1 A Detailed Assessment completed in 2011[4], and subsequent updates in 2013[5] and 2014[6], concluded that the annual mean nitrogen dioxide ($NO_2$) objective was being exceeded at relevant locations in Rayleigh. As a result, an AQMA was declared in 2015 covering a number of roads in Rayleigh Town Centre as shown in Figure 1. The AQMA Order is reproduced in Appendix A1. No current exceedences of the objectives have been identified at the council's monitoring locations elsewhere in the district of Rochford.


**Figure 1 - Rayleigh AQMA Boundary**

Contains Ordnance Survey data © Crown copyright and database right 2017. Additional data sourced from third parties, including public sector information licensed under the Open Government Licence v1.0. Ordnance Survey licence number 100046099.Monitoring Data

4 Air Quality Consultants (2011) Detailed Assessment of Air Quality in Rayleigh. May 2011

5 Air Quality Consultants (2013) Update to Detailed Assessment of Air Quality in Rayleigh. February 2013

6 Air Quality Consultants (2014) Rayleigh Detailed Assessment 2014 Update. March 2014

2.2 Monitoring has been carried out at a number of roadside sites for several years (Figure 2). These monitoring data, presented in Table 1, indicate that the annual mean $NO_2$ objective is being exceeded at a number of locations; however, apart from Rayleigh Weir (Brook Road) (BR), none of the monitoring sites are representative of relevant exposure. The results for 2015 are generally lower than previous years, however, data capture was very low in this year, so the results are only indicative.

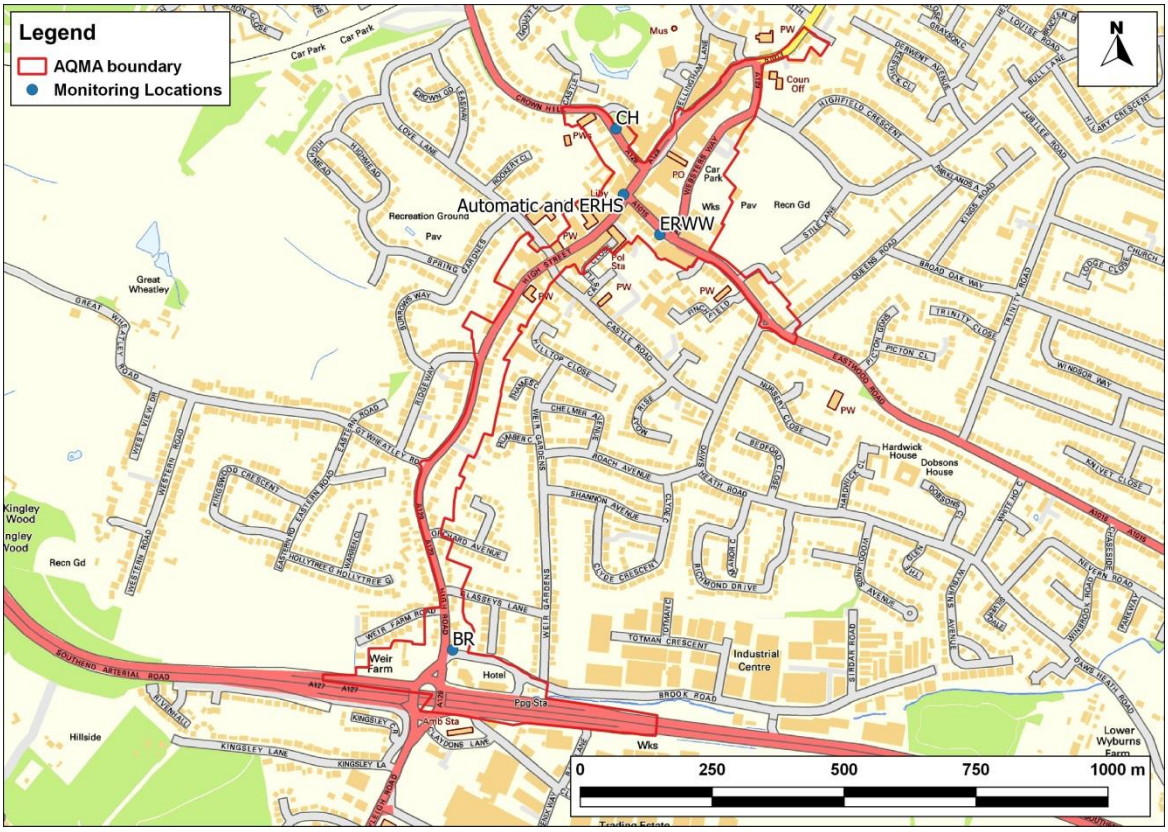



**Figure 2 - Monitoring Locations**

**Table 1 – Annual Mean NO2 Concentrations Measured within Rayleigh (µg/m$^3$)**

| Site | Site Type | Relevant Exposure | Site Description | 2012 [a] | 2013 [b] | 2014 [c] | 2015 [d] |
|---|---|---|---|---|---|---|---|
| **Automatic** | | | | | | | |
| **Automatic** | Roadside | No – exposure 4m further from the kerb and at 1st-floor | Eastwood Road/ High Street | **52.2** | **52.5** | **54.5** | **45.9** |
| **Diffusion Tubes** | | | | | | | |
| **BR** | Roadside | Yes | Rayleigh Weir (Brook Road) | 35.6 | 37.1 | 38.8 | 34.6 |
| **ERHS (a,b,c) [e]** | Roadside | No – exposure 4m further from the kerb and at height | Eastwood Road/ High Street | **42.2** | **47.4** | **46.3** | 38.0 |
| **CH** | Roadside | No– exposure 3m further from the kerb | Crown Hill | **45.1** | **43.6** | **48.9** | 39.6 |
| **ERWW** | Roadside | No - exposure 2.6m further from the kerb and at 1st floor | Eastwood Road/Websters Way | **45.3** | **48.3** | **52.4** | **47.3** |
| **Objective** | | | | **40** | | | |

[a] Data taken from the 2013 Update to Detailed Assessment[5].

[b] Data presented in 2014 Update to Detailed Assessment[6]. Diffusion tube data presented had been bias adjusted using a 2012 national factor for Gradko International of 0.96. Final 2013 factor was 0.95.

[c] Data provided by Rochford District Council. Diffusion tube data have been bias adjusted using a 2014 national factor for Gradko International of 0.92. Automatic data for January to June adjusted to 2014 annual mean based on St Osyth and Southend data.

[d] Automatic data for January to July adjusted to a 2015 annual mean based on St Osyth and Southend data. Only 2-4 months valid diffusion tube data available for 2015, so results indicative only (taken from 2016 Annual Status Report)[7].

[e] Average of triplicate tubes.

## Modelling Data

2.3 The Detailed Assessment, and subsequent updates, used dispersion modelling to determine concentrations at relevant locations (Figure 3 and Table 2). This demonstrated that concentrations at relevant receptors were exceeding the annual mean objective in 2012. As expected the concentrations at the relevant receptors were lower than those measured at the roadside monitoring sites. The maximum predicted annual mean concentration, verified and adjusted against 2012 monitoring data, was 43.1 µg/m$^3$, at a property located alongside High Road. Exceedences less than 5% above the objective (<42 µg/m$^3$) were also predicted at some

[7] Rochford District Council (2016) 2016 Air Quality Annual Status Report, July 2016.

properties very close to High Street, Hockley Road, Eastwood Road and Websters Way. It should be noted that there are no relevant receptors (residential properties) at ground-floor level in High Street and Eastwood Road; there is only relevant exposure at first-floor level at flats above shops. This was taken into account in the dispersion modelling.

2.4 Figure 4 shows that there is no obvious trend in measured concentrations between 2009 and 2014, which is consistent with monitoring carried out at sites across the UK. This reflects a disparity between the expected reductions in concentrations anticipated by Defra and those measured, which relate to the on-road performance of modern diesel vehicles. New vehicles registered in the UK have had to meet progressively tighter European type approval emissions categories, referred to as "Euro" standards. While the nitrogen oxides ($NO_x$) emissions from newer vehicles should be lower than those from equivalent older vehicles, the on-road performance of some modern diesel vehicles has often been no better than that of earlier models. This has been compounded by an increasing proportion of $NO_2$ in the $NO_x$ emissions, i.e. primary $NO_2$, which has a significant effect on roadside concentrations[8, 9].

2.5 A detailed analysis of emissions from modern diesel vehicles has been carried out by Air Quality Consultants Ltd.[10]. This shows that, where previous standards had limited on-road success, the 'Euro VI' and 'Euro 6' standards[11] that new vehicles have had to comply with from 2013/16 are delivering real on-road improvements. A detailed comparison of the predictions in Defra's Emission Factor Toolkit (EFT v6.0.2)[12] against the results from on-road emissions tests has shown that Defra's latest predictions still have the potential to under-predict emissions from diesel vehicles, albeit by less than has historically been the case[10]. In order to account for this potential under-prediction, the forecasts for 2016 and 2018 presented in Table 2 are based on a sensitivity test in which the emissions from Euro IV, Euro V, Euro VI, and Euro 6 vehicles have been uplifted using AQC's Calculator Using Realistic Emissions for Diesels (CURED)[15].

2.6 Also shown in Figure 4 are the modelled results for Receptor 4 (1 High Road), where modelled concentrations are highest. The results between 2012 and 2014 reflect the monitoring data, with concentrations remaining fairly constant. They also indicate that concentrations are now reducing. However, there is a degree of uncertainty in these estimates of future concentrations and thus

---

8 Carslaw, D., Beevers, S., Westmoreland, E. and Williams, M. (2011) *Trends in NOx and NO2 emissions and ambient measurements in the UK*, [Online], Available: uk-air.defra.gov.uk/reports/cat05/1108251149_110718_AQ0724_Final_report.pdf

9 Carslaw, D. and Rhys-Tyler, G. (2013) *Remote sensing of NO2 exhaust emissions from road vehicles*, July, [Online], Available: http://uk-air.defra.gov.uk/assets/documents/reports/cat05/1307161149_130715_DefraRemoteSensingReport_Final.pdf.

10 AQC (2016) *Emissions of Nitrogen Oxides from Modern Diesel Vehicles* , [Online], Available: http://www.aqconsultants.co.uk/Resources/Download-Reports.aspx

11 Roman numerals are used to refer to heavy duty vehicles, e.g Euro VI and numbers refer to cars/light duty vehicles, e.g. Euro 6

12 http://laqm.defra.gov.uk/review-and-assessment/tools/emissions-factors-toolkit.html

there remains a risk that the objective may continue to be exceeded for slightly longer than indicated in Table 2.

2.7 Estimated concentrations in 2016 and 2018 at all the modelled receptors, using AQC's Calculator Using Realistic Emissions for Diesels (CURED)[15], are shown in Table 2. The results indicate that in 2016 the objective will be exceeded at only one of the receptors modelled, and by less than 2.5% of the objective (40.9 µg/m$^3$). Elsewhere, the objectives are expected to be achieved. By 2018, the results suggest that the objective will be achieved at all locations in Rayleigh[13].

2.8 Examination of recent traffic data indicates that there has not been a significant increase in traffic flows since the Detailed Assessment was produced, and neither has traffic composition changed. In some locations, traffic flows appear to have reduced. Therefore the traffic data used as a basis for the Detailed Assessment are considered robust.


**Figure 3 - Specific Receptor Locations[14]**

Contains Ordnance Survey data © Crown copyright and database right 2017. Additional data sourced from third parties, including public sector information licensed under the Open Government Licence v1.0. Ordnance Survey licence number 100046099.

[13] Based on no growth in traffic flows on local roads and no new relevant receptors being introduced at worst-case locations. Analysis of traffic counts in the area, has demonstrated that this is a reasonable assumption for the AQMA.

[14] Receptors are those included in the Detailed Assessment, selected to represent a number of worst-case locations across the study area.

**Table 2 – Modelled Annual Mean $NO_2$ Concentrations at Specific Receptors (based on results presented in the 2013 Update to the Detailed Assessment)**

| | | | Concentration (µg/m$^3$) [a] | | |
|---|---|---|---|---|---|
| **Receptor [c]** | **Location** | **Height** | **2012** | **2016 [b]** | **2018 [b]** |
| **2** | 86 High Road | 1.5 | 39.9 | 38.1 | 36.3 |
| **3** | 61 High Road | 1.5 | **41.4** | 39.3 | 37.2 |
| **4** | 1 High Road | 1.5 | **43.1** | **40.9** | 38.6 |
| **5** | 161 High Street | 4.5 | 31.8 | 30.5 | 29.2 |
| **6** | 144 High Street | 5.0 | 37.7 | 35.9 | 34.1 |
| **7** | 136 High Street | 4.5 | 39.8 | 37.9 | 35.9 |
| **8** | 128 High Street | 4.5 | **40.3** | 38.2 | 36.2 |
| **9** | 107 High Street | 4.5 | 38.1 | 36.2 | 34.4 |
| **10** | 5 Eastwood Rd | 4.5 | 37.9 | 36.0 | 34.2 |
| **11** | 37 Eastwood Rd | 4.5 | **41.9** | 39.7 | 37.5 |
| **12** | King George's Court | 1.5 | 38.3 | 36.4 | 34.6 |
| **13** | 101 High Street | 4.5 | 39.0 | 37.1 | 35.2 |
| **14** | 84 High Street | 4.5 | 35.5 | 33.9 | 32.3 |
| **15** | 1 Crown Hill | 1.5 | 39.9 | 37.9 | 35.9 |
| **16** | 38 High St | 4.5 | 27.4 | 26.5 | 25.6 |
| **17** | 4 High St | 1.5 | 30.2 | 29.1 | 27.9 |
| **18** | 5 Church St | 1.5 | 30.5 | 29.3 | 28.1 |
| **19** | 22 Hockley Road | 1.5 | **41.5** | 39.4 | 37.3 |
| **20** | Webster's Court | 1.5 | **40.1** | 38.0 | 36.0 |
| **21** | 22-24 High Street | 5.0 | 26.8 | 26.0 | 25.2 |
| **Objective** | | | **40** | | |

[a] Values in bold are exceedences of the objective.

[b] 2016 and 2018 values are based on the 2012 concentrations using the following assumptions; background concentrations remain the same as 2012 and traffic emissions reduce in-line with those projected using AQC's Calculator Using Realistic Emissions for Diesels (CURED)[15], based on traffic flow and composition for Eastwood Road at 24kph. A sensitivity test based on traffic flows, compositions and speeds on all roads in the area, indicated that this produced the highest future concentrations.

[c] Receptor 1 is located within Castle Point Borough Council boundary and thus the results are not reported here.

[15] http://www.aqconsultants.co.uk/Resources/AQC-Tools.aspx

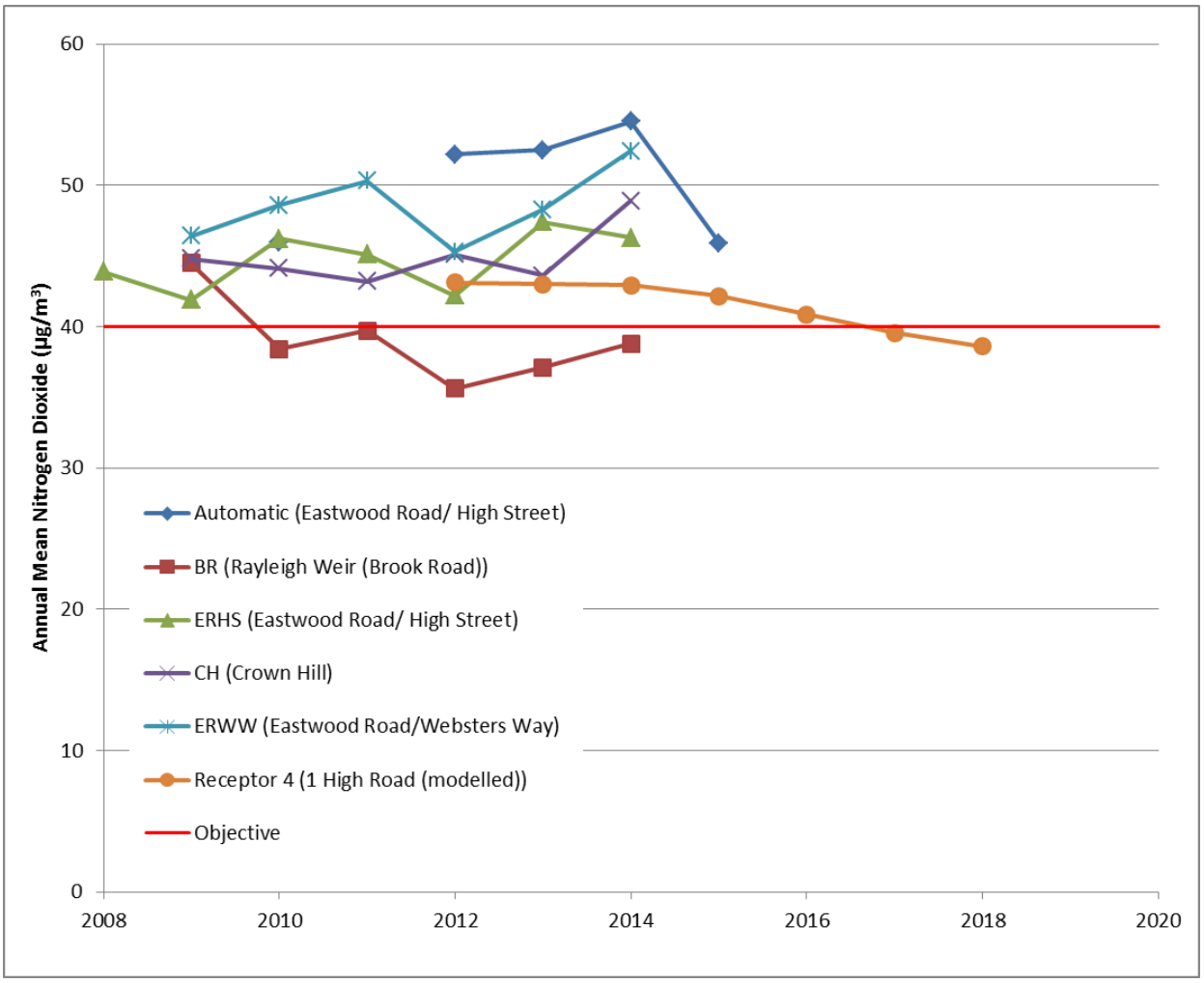



**Figure 4 - Trends in Annual Mean $NO_2$ Concentrations**

## Factors Influencing Air Quality in Rayleigh

2.9 The AQMA includes roads in Rayleigh town centre and the A129 (High Road) between the town centre and the A127, up to the boundary with Castle Point Borough Council.

2.10 Roads in Rayleigh town centre are congested for much of the day. Traffic travelling into and through the town must negotiate a number of mini roundabouts and heavily used pedestrian crossings, leading to vehicles decelerating, accelerating and idling. This "stop/start" traffic leads to far higher vehicle emissions than steady free-flow conditions, and this is contributing to the elevated $NO_2$ concentrations in the AQMA.

2.11 In addition, there are a number of hills in this congested area including Crown Hill and parts of High Road. When vehicles, particularly heavy goods vehicles (HGVs) and buses, need to start and accelerate on these hills, emissions are greatly increased. This is likely to be particularly influential on Crown Hill, which is used by buses travelling to and from the railway station.

2.12 There are very few relevant locations at ground-floor level within the town centre, with the majority of residential properties being flats or maisonettes above shops. However, there are houses very close to Crown Hill, High Road and Hockley Road where exceedences of the objective have occurred.

2.13 Exceedences of the objective have also occurred alongside the A129 (High Road) between the town centre and the A127. Traffic queues form along the A129 on the approach to both the A127 and the town centre, particularly in peak periods. It is this queueing traffic that is likely to be influencing air quality at relevant receptors. Traffic on the A127 dual carriageway is over 40m from relevant locations in Rayleigh, and whilst emissions from this road will have some impact on the AQMA, it is not the dominant source.

## Summary

2.14 In summary, the following points are relevant to the Action Plan:

- the annual mean $NO_2$ objective is predicted to be exceeded at only a small number of properties;
- these properties are situated at a number of locations around the AQMA, either where houses are very close to the road, or at flats above shops in the congested town centre;
- concentrations only exceed the objective in 2016 at relevant locations by less than 2.5% of the objective (maximum concentration of 40.9 µg/m$^3$ compared with the objective of 40 µg/m$^3$);
- congestion is likely to be the dominant cause of elevated concentrations;
- the objective is expected to be achieved at these locations in the next 2 years, due to reductions in emissions per vehicle; and
- any actions within the Action Plan need to be proportional to the marginal nature of the exceedences, which represent less than 2.5% of the objective.

# 3 Rochford's Air Quality Priorities

## Planning and Policy Context

### *Core Strategy*

3.1 The Rochford District Council Core Strategy was adopted in 2011[16]. It highlights the air quality issues in Rayleigh and acknowledges the potential impacts that new developments and changes to transport networks can have upon air quality in this area.

3.2 The document makes specific reference to consideration of the issues of congestion and poor air quality around the Rayleigh Weir junction of the A127 within a Route Management Strategy[17]. It also acknowledges that locating development to the east of Rayleigh and/or the west of Hockley could lead to increases in traffic travelling through the AQMA in Rayleigh on its way to and from the larger centres of Chelmsford and Basildon.

3.3 The Core Strategy includes Policy ENV5 Air Quality, which states that:

"*New residential development will be restricted in Air Quality Management Areas in order to reduce public exposure to poor air quality. In areas where poor air quality threatens to undermine public health and quality of life, the Council will seek to reduce the impact of poor air quality on receptors in that area and to address the cause of the poor air quality. Proposed development will be required to include measures to ensure it does not have an adverse impact on air quality.*"

3.4 The Core Strategy therefore already contains a strong policy basis with respect to air quality. Rochford District Council is in the early stages of reviewing the Local Plan and it will be important to retain appropriate policies within the new plan. This is discussed further in paragraph 5.28.

### *Rayleigh Centre Area Action Plan*

3.5 Rayleigh Centre Area Action Plan (AAP) was adopted in October 2015[18]. This forms part of the statutory development plan and focuses on guiding the development of the town centre. A number of potential changes are identified including rationalisation of the taxi rank, changes to traffic management on Crown Hill and changes to the timings of crossing signals. A number of policies are also identified to encourage walking, cycling and public transport use.

3.6 There are several policies which could lead to improvements in air quality in Rayleigh, including Policy 1 which states that:

---

16 http://www.rochford.gov.uk/planning/policy/local_development_framework/core_strategy_dpd1

17 Currently being reviewed

18 http://www.rochford.gov.uk/planning/policy/local_development_framework/rayleigh_area_action_plan

*"New and improved pedestrian and cycle routes within the AAP area and linking the centre with the railway station and the surrounding area"*

3.7 Policy 4 includes:

*"Enhanced cycle parking facilities should be provided at suitable locations throughout the centre;*

*Bus facilities should be upgraded, with improvements including better shelters and increased seating provision; and*

*New and improved pedestrian signage should be introduced for key destinations and attractions, including the rail station, the town centre, the Mount, the Windmill, Holy Trinity Church and the Dutch Cottage."*

3.8 Policies 5, 6, 7 and 8 include commitments to strengthening pedestrian links within and from outside the AAP area.

3.9 The AAP acknowledges that "*route and junction improvements as identified in Rayleigh's Strategic and Movement Frameworks (Figures 5 and 6 respectively) are a priority and the Council will seek to secure contributions to these improvements as relevant development proposals come forward*". It also confirms that, "*The local bus network is a town-wide resource which plays an important role in ensuring local people have access to sustainable, accessible modes of public transport. The Council will continue to work with partners at Essex County Council and the bus operators to keep the bus network– its routes, timetables and supporting infrastructure – under review.*"

## Source Apportionment

3.10 The AQAP measures presented in this report are intended to be targeted towards the predominant sources of emissions within the Rayleigh AQMA.

3.11 A source apportionment exercise was carried out by Rochford District Council in 2011, which was updated in 2013. This identified that at 1 High Road[5], where the maximum concentration was predicted within the AQMA, the percentage source contributions to $NO_x$ concentrations were as shown in Figure 5. The source contributions will be similar at other relevant locations within the AQMA.

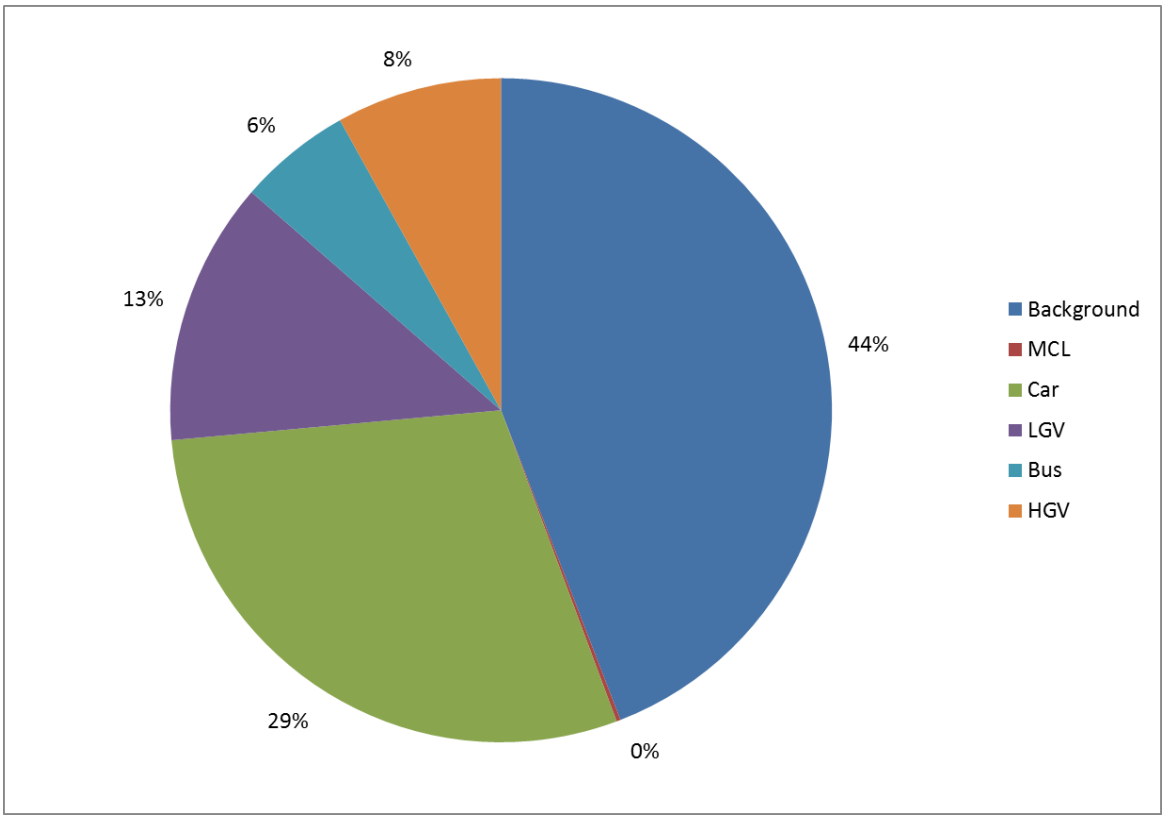



**Figure 5 - Source Apportionment of NOx Concentrations – 1 High Road**

3.12 This demonstrates that cars and light goods vehicles are the dominant sources of vehicle emissions, when free flow conditions and a flat gradient are assumed. As noted above, steep gradients and stop-start conditions can disproportionately increase HGV and bus emissions and where these conditions exist, the proportion of emissions attributable to these vehicle types may be greater than shown in Figure 5.

## Required Reduction in Emissions

3.13 As discussed in Section 2, the highest estimated concentration at a relevant location is 40.9 µg/m$^3$ in 2016. This is only 2.5% above the objective. As lower emissions from new vehicles continue to penetrate the vehicle fleet, it is anticipated that concentrations are likely to reduce from 2016 onwards. It is therefore expected that concentrations at relevant locations will fall below the annual mean objective within 2 years. The required reduction in emissions has therefore not been calculated.

3.14 It is, however, acknowledged that there is a degree of uncertainty associated with these estimates, and thus Rochford District Council (RDC) has developed this Action Plan to minimise the risk of exceedences continuing in the future.

## Key Priorities

3.15 Available information indicates that the air quality objectives will be achieved at all relevant locations within the AQMA by 2018, without any additional measures. Measures within the Action Plan are therefore proportional to the relatively small scale of the exceedences. Rochford District Council is already implementing a number of measures which will improve air quality in the AQMA and is committed to improving air quality in Rayleigh town centre. Measures are therefore focussed on minimising the risk of changes leading to exceedences of the objective in the future.

3.16 The key priorities for the Action Plan are:

- Priority 1 – reduce congestion adjacent to relevant receptors;
- Priority 2 – reduce volume of traffic through AQMA; and
- Priority 3 – strengthen planning policies to avoid new residential development in the AQMA, manage growth that may affect the AQMA and support Electric Vehicles infrastructure.

# 4 Development and Implementation of Rochford AQAP

## Steering Group

4.1 This Action Plan has been developed by a Steering Group. Key members of the group are officers from the Rochford District Council Environmental Health Department, and the Essex County Council Transport Planning and Development Team. They have been supported by Ringway Jacobs, with assistance from Air Quality Consultants Ltd. In addition, officers from Rochford District Council Planning Policy Team, Essex County Council Spatial Planning Department, Essex County Council Public Health Department and Sustrans have been copied into minutes and/or attended some of the meetings.

4.2 Prior to instigation of the Action Planning process, the Principal Environmental Health Officer at Rochford District Council already had a close working relationship with the Planning Policy team. In addition, the Transport, Planning and Development Department at Essex County Council has been instrumental in the development of the Action Plan. This has provided a firm foundation for the development of the Action Plan and a strong basis for implementation of the plan.

4.3 During development of the Action Plan it became apparent that liaison with Public Health colleagues has not been as close as with other departments. At the time of developing the Action Plan, there was no public health officer in post at Rochford District Council. An officer has now been employed and air quality issues have been included within the work programme. Measures have also been included in the Action Plan to address this issue.

4.4 An initial inception meeting was held with the main parties to identify the approach to the Action Plan, to exchange information and to determine a programme for delivery. Subsequently, two Steering Group meetings were held to develop and prioritise a list of measures; the first focussed on transport measures, and the second on planning policy and development control.

## Consultation and Stakeholder Engagement

4.5 In developing/updating this AQAP, we have worked with other local authorities, agencies, businesses and the local community to improve local air quality. Schedule 11 of the Environment Act 1995 requires local authorities to consult the bodies listed in Table 3. In addition, we have undertaken the following stakeholder engagement:

- letters to all householders within the AQMA;
- direct emails to; neighbouring authorities' Environmental Health Teams, Essex County Council (Highways Authority), Defra, The Environment Agency, Highways England, bus companies and Rayleigh Chamber of Trade;

- hard copies of the AQAP located in Council offices and libraries across the district;
- direct liaison with Rayleigh Town Council, and provision of poster for notice boards;
- section on RDC website, including banner on the home page, and the EssexAir website;
- promoted via the Council's Twitter, Facebook and Instagram accounts; and
- press release circulated to media, MPs and councillors, which resulted in an article in the Basildon, Canvey Island and Southend Echo.

4.6 Consultation was carried out for a five week period between November 2016 and January 2017. Forty consultation responses were received during this period. A summary of the responses to our consultation stakeholder engagement is given in Appendix A.

**Table 3 – Consultation Undertaken**

| Yes/No | Consultee |
|---|---|
| **Yes** | the Secretary of State |
| **Yes** | the Environment Agency |
| **Yes** | the highways authority |
| **Yes** | all neighbouring local authorities |
| **Yes** | other public authorities as appropriate, such as Public Health officials |
| **Yes** | bodies representing local business interests and other organisations as appropriate |

# 5 AQAP Measures

5.1 A list of all possible measures to improve air quality, including those already completed, proposed in existing plans and new measures, are listed in detail in Appendix A4. This includes those measures which have been considered, but are not appropriate, with the reasons for them being discounted identified. Each measure has been evaluated, taking account of the air quality impact, cost, feasibility and timescale using the approach set out in Appendix A3. The details of this evaluation are included in the table provided in Appendix A4.

5.2 The measures identified within this Action Plan are considered appropriate to address the relatively small scale of the exceedence of the air quality objective in Rayleigh, where concentrations are currently only marginally above the objective at a small number of properties. The measures also need to be implementable in a short timescale (1-2 years) in order to accelerate compliance with the air quality objective.

5.3 All of the factors described above, alongside the Council's key air quality priorities (as identified in paragraph 3.16), have been taken into account in prioritisation of the measures within the Action Plan. The measures to be included in the Action Plan fall into six main categories, which are set out in Table 4.

**Table 4 – Prioritisation of Action Plan Measures**

| Order | Category | Reason |
|---|---|---|
| 1 | **Monitoring** | Enable revocation of AQMA when appropriate |
| 2 | **Traffic management** | Key Priority 1 – reduce congestion adjacent to relevant receptors |
| 3 | **Sustainable travel** | Key Priority 2 – reduce volume of traffic through AQMA |
| 4 | **Planning policy and development control** | Key Priority 3 – strengthen planning policies to avoid new residential development in AQMA, manage growth and support EV infrastructure |
| 5 | **Low emission vehicles** | Public Health - reduce emissions in AQMA and across district |
| 6 | **Raising awareness.** | Public Health – raise awareness of issue, increase physical activity and management of symptoms |

5.4 A number of measures have been identified in each of the categories, which are considered in turn below.

## Monitoring

5.5 Whilst **monitoring** will not lead to improvements in air quality, it will be essential for determining when the AQMA can be revoked. Monitoring of concentrations below the objective for three years based on good quality monitoring data from relevant locations is required before the AQMA can be

removed. In Rayleigh, annual mean $NO_2$ concentrations at relevant locations are only marginally above the air quality objective and concentrations are anticipated to fall below the objectives within the next two years. Therefore, it is important that appropriate monitoring is carried out.

5.6 Monitoring is currently carried out using diffusion tubes at a number of roadside locations, most of which are not representative of relevant exposure. In addition, 6-month surveys are completed each year using an automatic analyser which is located in a permanent roadside housing that is also not directly representative of relevant exposure.

5.7 A number of additional diffusion tube monitoring sites will be set up which are directly representative of relevant exposure. These will focus on the locations where modelled concentrations are above or close to the objective. If possible, the diffusion tubes will be located at similar heights to the exposure, i.e. where flats are located above shops tubes should be higher. It will be helpful to retain some or all of the existing monitoring locations to allow long-term trends to be analysed. Consideration will be given to discontinuation of the automatic monitoring surveys, which do not provide appropriate information to support revocation of the AQMA.

5.8 It will be essential to ensure that the data obtained are of a suitable quality. This will include using a reputable laboratory to supply and analyse the diffusion tubes, changing the tubes at appropriate intervals and adjusting the results for laboratory bias and any other factors accordingly.

## Traffic Management

### *Town Centre*

5.9 A detailed evaluation of existing congestion in Rayleigh, and potential measures to alleviate it, has been carried out by Essex County Council. This concluded that options to reduce congestion, and thus also possibly $NO_2$ concentrations, are limited. The only option considered to be feasible is **conversion of the zebra crossings to traffic signal controlled Puffin crossing points**. This would reduce the frequency of vehicles being stopped and thus decrease the amount of acceleration and deceleration, which in turn would reduce vehicle emissions. Many of these crossing points are near to locations where the objectives are being exceeded, and the measure has the potential to have a perceptible impact on $NO_2$ concentrations, it is therefore an important measure within the Action Plan.

5.10 The Rayleigh study also found that implementing **bus laybys** that are fully off the carriageway would reduce congestion. However, there is insufficient space available to implement these laybys. Consideration has therefore been given to minimising emissions from buses within the AQMA. Arriva has suggested some possible alterations as part of the consultation process, and these will be investigated further. The main operators will be contacted to determine whether cleaner buses could be used or engine idling time minimised within the AQMA.

5.11 Many of the shops in the town centre are serviced via the rear, minimising the number of delivery vehicles that obstruct the traffic and lead to congestion and thus increased emissions. This Action Plan has thus identified the need to **retain off-carriageway delivery space** to avoid increasing congestion in the future. Consultation comments indicated issues with some of the off-carriageway loading bays. These will be investigated further.

### *A127*

5.12 The A127 forms the southern boundary to the AQMA and congestion, particularly on the roundabout with the A129 High Road (known as Rayleigh Weir roundabout), influences air quality at the southern end of the AQMA. In addition, there is anecdotal evidence that drivers travel through the Town Centre section of the AQMA to avoid congestion on the A127, particularly during peak periods and when there are incidents. Measures to relieve congestion on the A127 and Rayleigh Weir roundabout will therefore reduce pollutant concentrations within the AQMA.

5.13 **Upgrading of the signals at Rayleigh Weir** roundabout and linking to Stadium Way signals are planned for late 2016/17. This major scheme will include the introduction of a MOVA/SCOOT system, CCTV and driver information signage boards. The aim of the scheme is to reduce queuing on the A127 slip road approaches to the roundabout and in turn reduce pollutant concentrations through the AQMA. This scheme is programmed to be completed by end of March 2017.

5.14 During the development of this Action Plan, Defra has identified the A127 corridor through Rochford and Basildon as exceeding the EU limit value and thus requiring a Clean Air Zone (CAZ). The **A127 Corridor for Growth route strategy** is being reviewed and in the longer term there are planned improvements to the A127/A130 Fairglen Interchange. Both of these measures will aim to improve journey times on the A127, which will reduce 'rat-running' through the AQMA. A review of the **A127 Signage** is also anticipated, and a measure to consider the impacts on the AQMA as part of this process is included in the Action Plan.

## Sustainable Travel

5.15 **Travel information packs** are required for all new developments, these contain specific information for new residents on sustainable travel choices in the area. At present, packs have been prepared by Essex County Council for small residential developments in Rayleigh and a larger development in Hawkwell, much of the travel from which would be to or via Rayleigh. The potential for inclusion of air quality information will be investigated as part of the Action Plan.

### *Cycling and Walking*

5.16 Essex County Council is already implementing a number of **measures to increase cycling and walking in Rayleigh**. These include working with the train operating company, Abellio Greater

Anglia, to improve infrastructure, such as installing high quality, secure cycle stands at the station. The County Council is in the process of developing a County-wide Cycle Strategy, which will be supplemented by local Cycle Action Plans. Work on the Rayleigh Cycle Action Plan is expected to start shortly and likely to include identification of 'quiet routes', provision of cycle maps, parking and signage of alternative routes. This will implement a number of requirements already identified within the Rayleigh Area Action Plan once funding is secured.

5.17 Sustrans run a number of initiatives in Essex, including the Schools Ecorace and the 'Cake Escape'. **The Cake Escape** is a loyalty scheme for cyclists who visit participating cafes. Each time a cyclist collects four stamps, they can collect a free slice of cake. At present, there are no participating cafes in Rayleigh, so a measure within the Air Quality Action Plan is to encourage local businesses to join the scheme.

5.18 The **Schools Ecorace** is a termly initiative, where pupils record how they travel to school for 3 weeks and are awarded points accordingly. Prizes are then awarded to the class with the most points. There are no schools in Rayleigh currently participating in the scheme. A list of potential schools has been identified as part of the Action Plan process and a measure within the Action Plan is to approach these schools about joining the scheme.

### *Travel Plans*

5.19 Essex County Council runs a successful **Business Travel Plan** accreditation scheme. No businesses in Rayleigh have signed up to this scheme and Steering Group members have not identified any obvious organisations to target. However, the Essex County Council Travel Plan team have indicated a willingness to work with Rochford District Council to identify possible organisations and work with any that may be appropriate as part of this Action Plan.

5.20 As discussed above, the Essex Travel Plan team have not yet worked with any of the **schools** within Rayleigh. Therefore as part of this Action Plan, schools within and near to the AQMA will be targeted to develop Travel Plans with the aim of reducing car journeys through the AQMA and thus improving air quality. One of the consultation responses highlighted that knowledge about the air quality issues may actually encourage more people to drive to school. Information about the impacts of in-car exposure to pollution will therefore need to be included in this work.

5.21 **Home to rail station** travel plans have been completed for rail passengers at some Rail Stations in Essex. This could be an effective measure for Rayleigh, where a large proportion of people travelling to the Rail Station pass through the AQMA. A new rail franchisee was announced in late summer and was awarded to Abellio Greater Anglia. The Essex Travel Plan team will work with the franchisee to develop a travel plan for Rayleigh Rail Station.

5.22 Travel Plans for **new residential and commercial developments** will be essential to minimise the impact of these developments on traffic movements and thus air quality within the AQMA. The

best way to introduce these is via the planning system and thus they are discussed in the next section.

### *Public Transport*

5.23 Essex County Council has carried out a number of works as part of a Local Sustainable Transport Fund project aimed at bridging the gap between sustainable modes. This has included provision of real-time passenger information and upgrading ramps, lighting, cycle storage and shelters. As a result of this project a partnership has been developed with Abellio Greater Anglia who have match funded some of the improvements.

5.24 The next stage is to carry out a campaign to market these improvements. Whilst a recent funding bid was unsuccessful, Essex County Council will continue to work to identify and apply for alternative funding, to increase the use of these facilities and encourage journeys by alternatives to the private car.

## Planning

5.25 The current Rochford Local Plan contains a strong policy basis for restricting developments within, or that would have an impact upon, the AQMA (see paragraph 3.3). This has been used to refuse planning permission for a development where insufficient information has been provided. In addition, there is already strong partnership working between the Environmental Health and Planning departments at Rochford District Council.

5.26 Essex County Council reviews all planning applications where Transport Assessments are required. Their focus for mitigation of impacts of development upon transport networks is to prioritise maximisation of sustainable transport choices before requiring infrastructure improvements.

5.27 There is concern about the **impacts of air quality upon residential developments within the AQMA**, as premises are being converted to residential uses from other uses under permitted development rights. Mechanisms will therefore be investigated as part of the Action Plan to ensure that the air quality impacts upon such developments are considered appropriately, and adequate mitigation to protect future residents is provided.

5.28 The process of reviewing the Rochford Local Plan is in the early stages. An evidence base is currently being developed in conjunction with other South Essex councils to inform this process, which includes identification of future housing needs, potential areas for growth and district-wide traffic modelling. Rochford District Council Planning Policy officers hold monthly meetings with Essex County Council Transport, Planning and Development Team, both parties are members of the Steering Group and well briefed about the air quality issues in the AQMA, consulting with the Environmental Health team when required. This provides a strong platform to ensure that **air quality impacts upon, and within, the AQMA** are considered in the emerging Local Plan. It is

vital that this relationship continues and therefore it is identified as a measure within the Action Plan to continue active engagement with the Local Plan process on air quality issues.

5.29 It will be essential that the emerging Local Plan includes clear **policies to control future developments within the AQMA** and mitigate impacts upon it. Whilst the AQMA could be revoked in the early phases of the Local Plan, measures will be required to avoid traffic growth generated by developments leading to delays in compliance with the air quality objective or leading to exceedences re-occurring in the future. Measures to mitigate impacts upon the AQMA should relate to all developments that could lead to increases in traffic through the AQMA, not just those within it. Consideration will be given to the most appropriate policies as the Local Plan develops. These are expected to relate to provision of electric vehicle charging points, Travel Plans and infrastructure to encourage sustainable travel choices.

5.30 Some consultees have raised the issue of building a **bypass** to reduce traffic flows through the AQMA. The costs of building a bypass are very high and the timescale for implementation would be long. On this basis, the small scale of the air quality issues in Rayleigh does not justify building a bypass. However, it may be necessary to take it into consideration in the next Local Plan as an option to mitigate the highways impact of planned development in the area.

5.31 Whilst current cross-departmental relationships are strong and an informal approach to collaboration has worked well, consideration will be given to formalising arrangements to ensure consistency in the future. This could range from amendments to the planning application validation checklist, through to development of a local planning framework.

## Raising Awareness

5.32 There are a number of existing Essex-wide initiatives that provide relevant information. The **EssexAir**[19] consortium has a website holding information about air quality in Essex, including reports and monitoring data relevant to Rayleigh. It also provides daily pollution forecasts on its website and twitter feed, based on the Defra forecasts. Members of the consortium include environmental health officers from the district councils, a transport officer from Essex County Council, University of Essex and other interested parties. There is also the Active Essex[20] brand and website, which has been established to promote active travel in the County. A measure has been included in the Action Plan to promote these initiatives in any future relevant communications.

[19] http://www.essexair.org.uk/Default.aspx
[20] http://www.activeessex.org/

5.33 There is an established **carshare** network in Essex[21]. There is scope to set up a specific group for the district of Rochford under the wider Essex umbrella and this will be investigated further as part of the Action Plan.

5.34 It became apparent early in the process of developing the Action Plan that there has been limited engagement with District and County **Public Health** colleagues, to date. Relevant contacts have now been established and the next important action within the Action Plan is to brief these colleagues on air quality issues in Rayleigh and investigate ways in which the departments can work together.

5.35 Apart from consultation on the extent of the AQMA, there has been little engagement with local people in Rayleigh about the AQMA. An action has therefore been included within the Action Plan to make Rochford District Council communications department aware of this plan and any future updates, to allow them to **disseminate information** via the relevant existing channels.

## Low Emission Vehicles

### *Taxis*

5.36 There is a **taxi** rank within the AQMA and thus measures relating to controlling emissions from taxis will be important in Rayleigh. All taxis licenced by Rochford District Council are required to be a maximum of 6 years old at first registration and will not be re-licenced if more than 10 years old. This means that all taxis will currently be a minimum of Euro 4, with the majority being Euro 5 or Euro 6. The majority of taxis are diesel vehicles. $NO_x$ emissions from Euro 6 diesel vehicles are much lower than Euro 4 or Euro 5, therefore any tightening of the licencing conditions to remove Euro 4 and 5 diesel vehicles from the fleet would contribute to reducing emissions in the AQMA. The potential for reducing the maximum vehicle age has been discussed with the licencing officer. It is felt that at the current time, additional financial burden on applicants would not be acceptable. However, the potential for amending the licencing conditions is included as a measure within the Action Plan for future consideration. Options for encouraging the use of lower emission vehicles, such as electric, hybrid or petrol vehicles will also be considered.

### *Electric Vehicles*

5.37 ECC has adopted a policy to promote the use of electric vehicles. As part of the "Charge Ahead" project[22], three rapid electric vehicle chargers have been installed in Colchester, Braintree and Saffron Walden. Further electric vehicle charging points are available at the Park & Ride sites in Chelmsford. These will encourage commuters who travel through the AQMA to these areas to use electric vehicles.

[21] https://essex.liftshare.com/

[22] http://www.essexhighways.org/Transport-and-Roads/Getting-Around/Driving/Electric-car.aspx

5.38 The availability of financial incentives for low emission vehicles, such as grants for electric vehicles will be investigated. Information about available incentives will then be shared with the relevant Council departments, licenced taxi operators and other interested parties.

5.39 There is scope to introduce **priority parking** spaces and possibly lower parking fees for electric vehicles at carparks in Rayleigh. The feasibility of these options will therefore be considered further as part of the Action Plan.

5.40 There are currently no public electric vehicle charging points in Rayleigh. Therefore measures have been included in the Action Plan to **install at least one group of charging points** in a Council car park and to investigate other possible locations.

### *LPG*

5.41 There is an **LPG** refuelling station within the AQMA, on High Road[23]. The presence of this station will be promoted in any relevant literature.

## Summary of Action Plan Measures

5.42 The Rochford District Council AQAP measures are summarised under the six categories in Table 5 to Table 10. They contain:

- a list of the actions that form part of the plan;
- the responsible individual and departments/organisations who will deliver this action;
- expected benefit in terms of pollutant emission and/or concentration reduction;
- the timescale for implementation; and
- how progress will be monitored.

5.43 The Progress to Date column in Table 5 to Table 10, sets out whether measures are underway (on-going), included in current plans or programmes (proposed) or subject to further funding or approval (new measure). Measures already completed, or discounted are set out in Appendix A4, along with the relevant EU categories and classifications.

[23] Vehicles running on LPG have lower $NO_x$ emissions.

**Table 5 - Air Quality Action Plan Measures – Priority 1, Monitoring**

| Action | Lead Authority | Planning Phase | Implementation Phase | Key Performance Indicator | Target Pollution Reduction in the AQMA | Progress to Date | Estimated Completion Date | Comment |
|---|---|---|---|---|---|---|---|---|
| **1- Amend Monitoring Programme** | RDC | end 2016 | 2017-2020 | AQMA revoked | No impact on concentrations | New measure | 2020 at earliest | Currently monitoring using diffusion tubes at a number of roadside locations. 6-month automatic monitoring campaigns at a roadside site. Need to implement monitoring at building facades so that accurate information available to support revocation of AQMA. Will need to measure 3 years compliance (based on good quality data) at these locations before AQMA can be revoked. |

**Table 6 - Air Quality Action Plan Measures – Priority 2, Traffic Management**

| Action | Lead Authority | Planning Phase | Implementation Phase | Key Performance Indicator | Target Pollution Reduction in the AQMA | Progress to Date | Estimated Completion Date | Comments |
|---|---|---|---|---|---|---|---|---|
| **2- Rayleigh Weir (A127) Major scheme – Signals upgrade and installation of SCOOT/MOVA** | ECC | Early/mid 2016 | Completed End March 2017 | Reduction in measured $NO_2$ concentrations at sites affected by current queues | Up to 2 µg/m$^3$ | On-going | March 2017 | Funded major scheme – upgrade and linking of signals at Rayleigh Weir and Stadium Way including the introduction of MOVA/SCOOT system, CCTV and driver information boards. Due to start end 2016 |
| **3 - Changes to pedestrian crossing points** | ECC | 2016 | Dependant on funding | Puffin crossings installed to replace zebra crossings | >0.2 µg/m$^3$ | Proposed | Dependant on funding | Conversion of zebra crossings to Puffin - High Road/Eastwood Road and High Road North (nr Castle Road) most beneficial. Identified as part LHP work. Aim to secure funding via contributions as developments come forward. (Local Highways Panel have decided not to fund these changes as the cost benefit is low. Other funding opportunities will be explored) |
| **4- Use cleaner buses through AQMA** | RDC | 2016/2017 | 2017 | RDC held discussions with all relevant operators | <0.2 µg/m$^3$ | New measure | 2017 | Contact operators to determine whether cleanest buses in fleet could be used preferentially on routes through the AQMA |
| **5- Minimise bus waiting times in AQMA** | RDC | 2016/2017 | 2017 | RDC held discussions with all relevant operators | <0.2 µg/m$^3$ | New measure | 2017 | Contact operators to determine whether buses can minimise idling times in the AQMA |

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| **6- Retain appropriate off road space for freight deliveries and investigate issues with existing loading bays** | ECC/RDC | on-going | on-going | Freight delivery space retained | avoid worsening pollution | New measure | on-going | Most deliveries at rear (Websters Way) and off road, so do not cause obstructions in AQMA. Probably no scope for improvement in terms of location or hours. AAP and planning policy needs to protect space for deliveries at rear. |
| **7 - Ensure South Essex Strategic Signing review takes impact on AQMA into account** | ECC | on-going | on-going | Reduction in through traffic in AQMA | <0.2 µg/m$^3$ | Proposed | on-going | A review of strategic signage is currently being undertaken. This will set the requirements for signing upgrades/changes to be undertaken as highway schemes come on stream. Scope to avoid AQMA will be limited because A129 is a priority 1 route. |
| **8 - A127 / A130 Fairglen Interchange short term scheme improvements** | ECC | 2015 to 2020 | 2021/2023 | Reduction in through traffic in AQMA | >0.2 µg/m$^3$ | Proposed | 2023 | Major scheme to improve journey times and manage congestion. Improvements on the A127 corridor will reduce traffic through AQMA which re-route to avoid congestion on the A127 |
| **9 - A127 Corridor for Growth route strategy review** | ECC | mid/end 2016 | 2017/18 | Reduction in measured $NO_2$ concentrations at sites affected by current queues | up to 2 µg/m$^3$ | Proposed | 2018 | The strategy identifies the issues and solutions for the A127 Corridor to support and enable economic growth across south Essex. Improvements on the A127 corridor will take into consideration and aid the reduction of traffic through AQMA which re-route to avoid congestion on the A127. Need to ensure air quality impacts on AQMA are given adequate consideration and weight in decision making process. |
| **10 - Route based strategies B1013 and A1015** | ECC | Yet to be funded | No funding allocation at this time | Route management measures to reduce congestion and improve journey times | <0.2 µg/m$^3$ | Proposed | Yet to be determined | No current funding but aspiration to consider measures to improve travel times. Likely to include walking/cycling measures |

**Table 7 - Air Quality Action Plan Measures – Priority 3, Sustainable Travel**

| Action | Lead Authority | Planning Phase | Implementation Phase | Key Performance Indicator | Target Pollution Reduction in the AQMA | Progress to Date | Estimated Completion Date | Comments |
|---|---|---|---|---|---|---|---|---|
| **11- Eco Race Essex. Target Rayleigh Schools** | Sustrans/ ECC | 2016/17 | 2017/2018 | Increase number of schools participating | <0.2 µg/m$^3$ | New measure | 2017/2018 | For 3 weeks per term pupils record how they travel to school and are awarded points accordingly. No schools in Rayleigh involved at present. Promote as part of wider School Travel Plans targeting |
| **12 - Quiet Routes** | ECC / RDC/ Sustrans | 2017 | 2017/2018 | Quiet routes identified and publicised | <0.2 µg/m$^3$ | New measure | 2018 | Identify appropriate 'quiet routes', such as Love Lane/Castle Road in Cycle Action Plan |
| **13 - The Cake Escape** | Sustrans/ RDC | end 2016/beg 2017 | 2017 | At least 1 café in Rayleigh joined scheme | <0.2 µg/m$^3$ | New measure | 2017 | Loyalty scheme for cyclists to get free cake at participating cafes. No cafes in Rayleigh at present - identify participants, possibly via Rayleigh Town Team. |
| **14- Secure cycling parking local schools** | Sustrans/ ECC | 2017 | Dependant on funding | Increase number of secure cycle stands at schools | <0.2 µg/m$^3$ | New measure | Dependant on funding | Experience in Essex demonstrates that provision of secure cycle parking can increase cycle numbers. Funding will need to be identified. |
| **15 - Enhanced cycle parking facilities** | RDC / ECC | 2016 | 2017/18 | Increase in cycle parking facilities | <0.2 µg/m$^3$ | Proposed | 2018 | Policy in Area Action Plan to provide enhanced cycle parking facilities at suitable locations throughout the centre |
| **16 - New and improved pedestrian and cycle routes** | ECC / RDC | 2016 | 2017/18 | Inclusion of appropriate measures in Cycle Action Plan | <0.2 µg/m$^3$ | Proposed | 2018 | New and improved pedestrian and cycle routes and links to the railway station included in AAP. Likely to be implemented as part of local Cycle Action Plan. |
| **17 - Cycle Action Plan** | ECC / RDC | 2016 | 2017/18 | Appropriate routes identified and publicised | <0.2 µg/m$^3$ | Proposed | 2018 | Local improvements considered in town centre as part of Rayleigh Town Centre Action Plan. Likely to include cycle maps, parking and signage of alternative routes. Funding yet to be secured for implementation. Development of Action Plan funded by ECC |
| **18 - Marketing of Rail/bus/cycle improvements** | ECC | 2016/2017 | dependant on funding | Will be identified as part of funding process | <0.2 µg/m$^3$ | Proposed | dependant on funding | Marketing of Rail/bus/cycle improvements installed using previous LTSF funding. Sustainable Transition Fund bid for marketing was not successful. Will look to identify and apply for alternative funding |

| Action | Lead Authority | Planning Phase | Implementation Phase | Key Performance Indicator | Target Pollution Reduction in the AQMA | Progress to Date | Estimated Completion Date | Comments |
|---|---|---|---|---|---|---|---|---|
| **19 - Home to Rail Station travel plans** | ECC/train operator | 2017 | 2018 | Plans implemented | <0.2 µg/m$^3$ | New measure | 2019 | Personalised home to station travel plans have been carried out at two stations in Essex. This could be effective for Rayleigh passengers to minimise car trips through the AQMA. Will be looked into with new rail franchise operator Abellio East Anglia. |
| **20 - Rayleigh School Travel Plans** | ECC | 2017 | 2017/2018 | Implement at least one new school travel plan in Rayleigh | <0.2 µg/m$^3$ | New measure | 2018 | 2 secondary schools and up to 4 primary schools near AQMA. Targeted travel planning in schools in conjunction with raising awareness air quality has potential to reduce number of trips through the AQMA. Needs to include information about in-car exposure. |
| **21 - New Business Travel Plans in Rayleigh** | ECC | 2016/2017 | 2017/2018 | At least one business travel plan implemented (if suitable business identified) | <0.2 µg/m$^3$ | New measure | 2018 | No large employers in Rayleigh identified by Steering Group. ECC have indicated that they have a list of potential targets in Rochford, which could be pursued. |
| **22- New and improved pedestrian signage** | RDC | 2017/18 | 2018/19 | New signage introduced. | <0.2 µg/m$^3$ | Proposed | 2020 | New and improved pedestrian signage should be introduced for key destinations and attractions, including the rail station, the town centre, the Mount, the Windmill, Holy Trinity Church and the Dutch Cottage. Policy in AAP |

**Table 8 - Air Quality Action Plan Measures – Priority 4, Planning**

| Action | Lead Authority | Planning Phase | Implementation Phase | Key Performance Indicator | Target Pollution Reduction in the AQMA | Progress to Date | Estimated Completion Date | Comments |
|---|---|---|---|---|---|---|---|---|
| **23 - Ensure air quality impacts on and in AQMA considered in development plan evidence base (South Essex)** | RDC/ECC | 2016 | 2016/2017 | Impacts on AQMA considered in Local Plan | Avoid worsening pollution in AQMA | New measure | 2017 | ECC transport department attends fortnightly meetings. Ensure RDC AQ officer copied into minutes. |
| **24 - Formalise Communications between Environmental Health and Planning** | RDC/ECC | 2017 | 2017/2018 | Implement an appropriate communications framework | Avoid worsening pollution in AQMA or introducing new receptors into AQMA without mitigation | New measure | 2018 | Needed to ensure that impacts of new developments upon AQMA and appropriate mitigation measures are considered consistently in all applications. ECC review applications with Transport Assessments using a checklist. Now prioritising measures to maximise sustainable transport 1st, infrastructure 2nd. Alternative approach could be to add air quality considerations to this checklist, although this wouldn't include smaller applications. |
| **25 - Ensure ALL new receptors introduced in AQMA are considered, where possible** | RDC | end 2016/early 2017 | 2017 | AQ assessments for all relevant permitted development applications | No additional receptors introduced in AQMA without appropriate mitigation. | New measure | 2017 and beyond | Investigate mechanism for ensuring that new sensitive receptors introduced in the AQMA via permitted development have appropriate air quality assessments and mitigation. Update planning officers on AQMA and Action Plan |
| **26 - Promote Electric Vehicles in new developments** | RDC/ECC | 2016/2017 | 2017 | Policy requiring EV included in Local Plan | Avoid worsening pollution in AQMA | New measure | 2018 | Include appropriate policy in emerging Local Plan |
| **27 - Travel Plans - new developments** | RDC | 2017 | 2017/2018 | All new developments required to implement residential travel plans | <0.2 µg/m$^3$ | New measure | on-going | Large developments permitted to west and north of Rayleigh. Potential for targeted travel plans or packs for new residents. May need to include requirement in Local Plan. |

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| **28 – Consider viability of bypass as highways mitigation for planned developments as part of Local Plan process** | RDC/ECC | 2017/18 | 2020 | Requirement included in Local Plan | >2 µg/m$^3$ | New measure | 2020 | Quantum of development in next Local Plan could justify a bypass as mitigation for highway impacts. This will need to be considered carefully as part of the Local Plan process. |

**Table 9 - Air Quality Action Plan Measures – Priority 5, Low Emission Vehicles**

| Action | Lead Authority | Planning Phase | Implementation Phase | Key Performance Indicator | Target Pollution Reduction in the AQMA | Progress to Date | Estimated Completion Date | Comments |
|---|---|---|---|---|---|---|---|---|
| **29 - Lower parking fees for EV** | RDC | 2017 | 2017/2018 | Scheme introduced | <0.2 µg/m$^3$ | New measure | 2018 | Investigate for potential lower parking fees or season ticket fees for EV. Season tickets may be easier to enforce than day tickets which are pay and display. |
| **30 - EV grants** | RDC/ECC | 2016/2017 | 2017 | Grants identified and applied for | <0.2 µg/m$^3$ | New measure | 2017/18 | Investigate grants for Council and other vehicles, including taxis, from OLEV and communicate to relevant groups. Apply for any directly relevant to RDC or ECC that could impact upon AQMA |
| **31 - Prioritise parking provision for EV** | RDC | 2016/2017 | 2017 | Priority spaces implemented | <0.2 µg/m$^3$ | New measure | 2018 | Investigate potential for priority parking for EV - at station and high street (season ticket holders already given priority spaces nearest to station). |
| **32 - Install EV charging at council car parks** | RDC | early 2017 | 2017 | At least 1 charge point installed in a Rayleigh car park | <0.2 µg/m$^3$ | New measure | 2017/18 | Install EV at least one group of charging points at Council car park |
| **33 - Additional EV points** | RDC/ECC | 2017 | 2018 | Additional EV points installed | <0.2 µg/m$^3$ | New measure | 2018 | Currently no public charging points in Rayleigh. ECC group aiming for provision of at least 1 point per district. |
| **34 - Promote LPG** | RDC | 2016/2017 | 2017/2018 | LPG station promoted in all relevant communications | <0.2 µg/m$^3$ | New measure | 2017/18 | 1 petrol station in AQMA has LPG refuelling infrastructure/ promote in other awareness raising information |
| **35 - Taxi Emission Incentives** | RDC | 2016/2017 | 2017 | Increase in low emission taxis | <0.2 µg/m$^3$ | New measure | 2018 | Make taxi companies aware of possible grants |

| Action | Lead Authority | Planning Phase | Implementation Phase | Key Performance Indicator | Target Pollution Reduction in the AQMA | Progress to Date | Estimated Completion Date | Comments |
|---|---|---|---|---|---|---|---|---|
| **36 - Taxi Licencing** | RDC | 2016/2017 | 2017 | Licence conditions that encourage low emission vehicles | <0.2 µg/m$^3$ | New measure | 2019/20 | Current conditions (January 2016) maximum age 6 years when first licenced and not re-licenced if more than 10 years old. Not appropriate to reduce the age limit further at this time. May consider requiring lower age limit, or conditions that encourage low emission vehicles in the future. |

**Table 10 - Air Quality Action Plan Measures – Priority 6, Raising Awareness**

| Action | Lead Authority | Planning Phase | Implementation Phase | Key Performance Indicator | Target Pollution Reduction in the AQMA | Progress to Date | Estimated Completion Date | Comments |
|---|---|---|---|---|---|---|---|---|
| **37 - Promote Essex Liftshare** | ECC | 2016/2017 | 2017/2018 | Increase in number of users travelling through Rayleigh | <0.2 µg/m$^3$ | New measure | 2017/18 | Established liftshare website for Essex. Promote locally as part of other awareness raising. Investigate addition of Rochford group under the Essex umbrella |
| **38 - Set up Rochford Liftshare group** | ECC | 2016/2017 | 2017 | Rochford group set up | <0.2 µg/m$^3$ | New measure | 2017 | Private group for Rochford can be set up under Essex umbrella free of charge. |
| **39 - Promote Active Essex** | ECC | 2016/2017 | 2017/2018 | Active Essex promoted in all relevant communications | <0.2 µg/m$^3$ | New measure | 2017/18 | Established brand and website which aims to promote and encourage the uptake of healthy lifestyles across Essex. Various initiatives and events. Promote locally as part of other awareness raising. Investigate scope to link air quality with future initiatives. |
| **40 - Engage Public Health colleagues at district and county level** | RDC | end 2016 | 2016/17 | Briefings completed | <0.2 µg/m$^3$ | New measure | 2017 | AQ not yet considered by public health colleagues. ECC Public Health on Steering Group and RDC officer now appointed (and AQ included in workplan). Need to raise AQ up their agenda by providing briefing to both ECC and RDC public health colleagues. |
| **41 - Promote Air Quality Action Plan and awareness in Rayleigh** | RDC | 2016/2017 | 2017/2018 | Increase in comms related to air quality | Raise awareness of AQMA and Action Plan | New measure | when AQMA revoked | Make RDC comms aware of AQAP and any updates, to allow them to distribute information via existing channels. Consider an event or awareness campaign using existing channels |

# 6 Glossary

| | |
|---|---|
| **AQC** | Air Quality Consultants |
| **AQMA** | Air Quality Management Area |
| **Defra** | Department for Environment, Food and Rural Affairs |
| **DfT** | Department for Transport |
| **EFT** | Emission Factor Toolkit |
| **Exceedence** | A period of time when the concentration of a pollutant is greater than the appropriate air quality objective. This applies to specified locations with relevant exposure |
| **IAQM** | Institute of Air Quality Management |
| **LAQM** | Local Air Quality Management |
| **µg/m$^3$** | Microgrammes per cubic metre |
| **NO** | Nitric oxide |
| **$NO_2$** | Nitrogen dioxide |
| **NOx** | Nitrogen oxides (taken to be $NO_2$ + NO) |
| **Objectives** | A nationally defined set of health-based concentrations for nine pollutants, seven of which are incorporated in Regulations, setting out the extent to which the standards should be achieved by a defined date. There are also vegetation-based objectives for sulphur dioxide and nitrogen oxides |
| **SPD** | Supplementary Planning Document |
| **Standards** | A nationally defined set of concentrations for nine pollutants below which health effects do not occur or are minimal |
| **TEA** | Triethanolamine – used to absorb $NO_2$ |

# 7 Appendices

# A1 AQMA Order

**Rochford District Council**

**ENVIRONMENT ACT 1995, SECTION 83**

Rochford District Council

## Air Quality Management Area Order

**Rochford District Council** ("The Council"), in exercise of the powers conferred upon it by Section 83(1) of the Environment Act 1995, hereby makes the following Order:

1. This Order may be cited as the **Air Quality Management Area (Rochford District Council) (No.1) Order 2015** and shall come in to effect on 1st February 2015.

2. The effect of the Order is to designate as an Air Quality Management Area ("the AQMA"), the area as shown outlined in red on the plan in Schedule 1 which incorporates some premises in each of the following streets:

    a) Brook Road;
    b) Crown Hill;
    c) Eastwood Road;
    d) High Road;
    e) High Street;
    f) Hockley Road;
    g) Southend Arterial Road;
    h) Webster's Way.

3. Where the AQMA includes any part of a property, it shall be taken to include the whole of that property (buildings and associated open space) within the same curtilage.

4. The AQMA is designated in relation to a likely breach of the nitrogen dioxide ($NO_2$) annual mean Objective as specified in the Air Quality (England) Regulations 2000, as amended.

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

MIN NO 149/14
SEAL NO 6499

**The Common seal of ROCHFORD DISTRICT COUNCIL was hereunto affixed**

**DATED:**

**in the presence of**

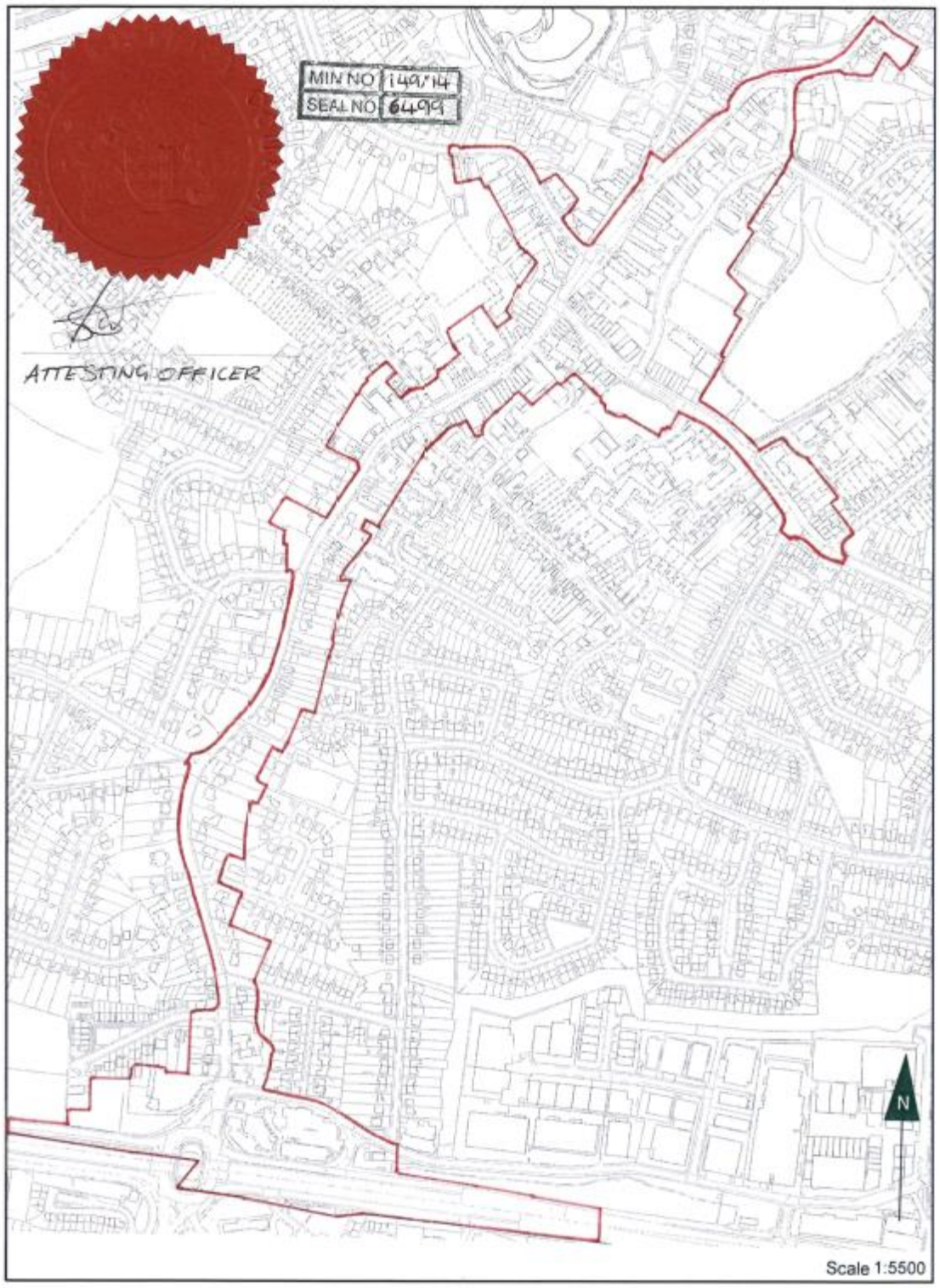
**SIGNED:** 30 January 2015

**Attesting Officer**

*Address for all communications:*
Rochford District Council, Council Offices
South Street, Rochford, Essex SS4 1BW

**Notes: A copy of this Order and associated plan have been deposited and may be seen, free of charge, at the above address during normal working hours and on the Council's website www.rochford.gov.uk/airquality. Enquiries should be directed to Customer Services at the above address, via telephone on (01702) 318111 or else via the website.**

**Schedule 1 – Air Quality Management Area (Rochford District Council) (No.1) Order 2015**



# A2 Response to Consultation

**Table A.1 - Summary of Responses to Consultation and Stakeholder Engagement on the AQAP**

| Consultee | Category | Response |
|---|---|---|
| **Licencing Officer RDC** | District Council | Financial burden of further reducing the maximum age of taxis will be too great. Retain current requirements. |
| **Planning Policy RDC** | District Council | No specific comments on AQAP. Passed on comments from community engagement event about need for monitoring. |
| **Environmental Health Castle Point Borough Council** | District Council | Supports the AQAP and offered assistance. |
| **Defra** | Government | AQAP provides a strong basis for addressing the local air quality problems. Minor comments on presentation of information. |
| **Arriva Bus** | Business | Suggested amendments to bus routes and laybys. |
| **Rayleigh Town Council** | Town Council | Issues cannot be resolved without a bypass. Air pollution issue may encourage parents to drive to school. Require all taxis to be hybrid or electric. Signs to encourage vehicles to avoid AQMA. Manage service vehicles. Weight limits. Re-examine changes to pedestrian crossings. Additional planting. |
| **Chamber of Trade** | Business | Reduce new housing development, park and ride, reduce public transport costs, manage taxis, shared space. |
| **Members of the public and local Councillors** | Public | Requests for monitoring in various locations, need a bypass, suggested improvements to reduce taxi, bus and delivery vehicles idling and causing queuing, too many houses being built, more tree planting, filters on bus stops, more traffic calming, less traffic calming, amendments to bus routes, amendments to road layouts/priorities. |

# A3 Approach to Evaluation of Measures

## Evaluation Approach

A3.1 The Actions are evaluated in relation to their expected impact on:

- air quality (i.e. reduction in emissions or concentrations);
- cost;
- feasibility or practicability of option (including the wider non-air quality impacts); and
- timescale for implementation.

### *Air Quality Impact*

A3.2 Air quality impacts have been classified to represent 'low 'to 'high' impact. The higher the impact, the greater the improvement in air quality, i.e. the greater the reduction in $NO_2$ concentrations. For each Action, the expected reduction in annual mean $NO_2$ concentrations has been determined based on professional judgement, drawing, wherever possible, on experience gained from other studies. It should be noted that the impacts on air quality are judged in relation to the impacts within the AQMA(s). So, for example, an Action may have wide reaching benefits, but only be slightly beneficial within the AQMA(s). The following classification scheme has been used:

**Low**: *imperceptible* (a step in the right direction). Improvements unlikely to be detected within the uncertainties of monitoring and modelling;

**Medium**: *perceptible* (a demonstrable improvement in air quality). An improvement of up to 2 $\mu g/m^3$ $NO_2$, which could be shown by a modelling scenario. Improvement is not likely to be shown by monitoring due to confounding factors of the weather; and

**High**: *significant*. Improvement of more than 2 $\mu g/m^3$ $NO_2$. Can be clearly demonstrated by modelling or monitoring (a significant improvement is likely to be delivered by a package of options rather than by a single intervention).

### *Cost*

A3.3 The implementation of the measures set out in this Action Plan are dependent on securing a sufficient and consistent level of funding both to support any additional staff that may be required, and to deliver the programme. In line with current Government guidance, it is not necessary to carry out a detailed cost-benefit analysis. Rather the aim is to provide a broad indication of costs so that the proposed measures can be ranked according to the cost and the expected improvement to air quality. Costs are represented as follows:

**'Very Low'** cost is taken to be £10K and under;

**'Low'** cost is taken to be £10 - £50K;

**'Medium'** cost is £50 - 500K;

**'High'** cost is £500K - £2 million; and

**'Very High'** cost is over £2 million.

### *Feasibility*

A3.4 The feasibility of individual measures is not straightforward to quantify. The following factors have been taken into consideration:

- alignment / synergies with other County or District Council initiatives;
- wider non-air quality impacts (social, environmental or economic);
- stakeholder acceptance / "political" feasibility; and
- source of funding available or possible.

The Feasibility has been judged as follows:

**Low feasibility;**

**Medium feasibility;**

**High feasibility.**

### *Timescale*

A3.5 The timescale for the implementation of measures has also been considered. The following classifications have been used: **Short-term** relates to those measures that can be implemented within 1-2 years; **Medium-term** relates to those implemented within 2-5 years; **Long-term** options are those which are 6+ years.

# A4 All Action Plan Measures Considered

| Action | EU Category | EU Classification | Lead Authority | AQ Impact | Cost | Feasibility | Timescale | Comments |
|---|---|---|---|---|---|---|---|---|
| **Rayleigh Weir (A127) road layout/lane amendments** | Traffic Management | UTC, Congestion management, traffic reduction | ECC | low | medium | high | complete | Road layout/lanes amended as part of a Rochford Local Highways Panel scheme |
| **Rayleigh Weir (A127) Major scheme – signals upgrade SCOOT/MOVA** | Transport Planning and Infrastructure | Strategic highway improvements, | ECC | low / medium | high | high | short | Funded major scheme – upgrade and linking of signals at Rayleigh Weir and Stadium Way including the introduction of MOVA/SCOOT system, CCTV and driver information boards. Due to start end 2016 |
| **Ensure South Essex Signing review takes impact on AQMA into account** | Traffic Management | Other | ECC | low | high | high | long | A review of strategic signage is currently being undertaken and will cover the strategic highway network of A127, A13, A130 southern end of A1245. Scope to avoid AQMA will be limited because A129 is a priority 1 route. |
| **A127 / A130 Fairglen Interchange short term improvements** | Traffic Management | UTC, Congestion management, improved journey times | ECC | low / medium | very high | high | medium | Major scheme to improve journey times. Improvements on the A127 corridor will reduce traffic through AQMA which re-route to avoid congestion on the A127 |

| Action | EU Category | EU Classification | Lead Authority | AQ Impact | Cost | Feasibility | Timescale | Comments |
|---|---|---|---|---|---|---|---|---|
| **A127 Corridor for Growth strategy** | Traffic Management | UTC, Congestion management, traffic reduction | ECC | low/medium | strategy = medium<br>implement -ation = high to very high | medium | strategy = short<br>implementati -on = long | The strategy identifies the issues and solutions for the A127 Corridor to support and enable economic growth across south Essex. Improvements on the A127 corridor will take into consideration and aid the reduction of traffic through AQMA which re-route to avoid congestion on the A127. Need to ensure air quality impacts on AQMA are given adequate consideration and weight in decision making process. |
| **Car club** | Alternatives to private vehicle use | Car Clubs | RDC | low | low | high | short | Investigate provision of car club space(s) in Rayleigh |
| **Promote Essex Liftshare** | Alternatives to private vehicle use | Car & lift sharing schemes | ECC | low | very low | high | short | Established liftshare website for Essex. Promote locally as part of other awareness raising. Investigate addition of Rochford group under the Essex umbrella |
| **Set up Rochford Liftshare group** | Alternatives to private vehicle use | Car & lift sharing schemes | ECC | low | very low | high | short | Private group for Rochford can be set up under Essex umbrella free of charge. |
| **Promote Active Essex** | Promoting Travel Alternatives | Intensive active travel campaign & infrastructure | ECC | low | very low | high | short | Established brand and website which aims to promote and encourage the uptake of healthy lifestyles across Essex. Various initiatives and events. Promote locally as part of other awareness raising. Investigate scope to link air quality with future initiatives. |
| **Eco Race Essex. Target Rayleigh Schools** | Promoting Travel Alternatives | Intensive active travel campaign & infrastructure | Sustrans / ECC | low | very low | high | short | For 3 weeks per term pupils record how they travel to school and are awarded points accordingly. No schools in Rayleigh involved at present. Promote as part of wider School Travel Plans targeting |
| **Quiet Routes** | Transport Planning and Infrastructure | Cycle network | RDC / Sustrans | low | medium | medium | short/ medium | Identify appropriate 'quiet routes', such as Love Lane/Castle Road in Cycle Action Plan |

| Action | EU Category | EU Classification | Lead Authority | AQ Impact | Cost | Feasibility | Timescale | Comments |
|---|---|---|---|---|---|---|---|---|
| **The Cake Escape** | Transport Planning and Infrastructure | Cycle network | Sustrans / RDC | low | very low | high | short | Loyalty scheme for cyclists to get free cake at participating cafes. No cafes in Rayleigh at present - identify participants, possibly via Rayleigh Town Team. |
| **Secure cycling parking local schools** | Transport Planning and Infrastructure | Other | Sustrans / ECC | low | very low | high | short | Experience in Essex demonstrates that provision of secure cycle parking can increase cycle numbers. |
| **County Cycle Strategy** | Promoting Travel Alternatives | Promotion of cycling | ECC | low | medium | high | short/ medium | County-wide strategy to encourage uptake of cycling. Overarching document - implemented via local action plans. Passed by ECC cabinet |
| **Secure cycling parking rail station** | Transport Planning and Infrastructure | Public transport improvements- interchanges stations and services | ECC / station operator | low | low | high | short | Experience in Essex demonstrates that provision of secure cycle parking can increase cycling numbers.<br>ECC funded Abellio Greater Anglia to install secure cycle parking facilities at Rayleigh Station in 2016 from the LSTF. Planning application for 2 x 8 cycle stands on the north side of station is to be submitted. If these are popular, more will be required. |
| **Enhanced cycle parking facilities should be provided at suitable locations throughout the centre** | Transport Planning and Infrastructure | Cycle network | RDC | low | very low | high | short/ medium | Policy in Area Action Plan |
| **New and improved pedestrian and cycle routes and links to the railway station** | Transport Planning and Infrastructure | Cycle network | RDC / ECC | low | low | high | short/ medium | Included in AAP. Likely to be implemented as part of local cycle action plan when funding secured |

| Action | EU Category | EU Classification | Lead Authority | AQ Impact | Cost | Feasibility | Timescale | Comments |
|---|---|---|---|---|---|---|---|---|
| **Cycle Action Plan** | Transport Planning and Infrastructure | Cycle network | ECC / RDC | low | medium | high | Stakeholder workshop July 2016. Plan expected early summer 2017 | Local improvements considered in town centre as part of Rayleigh Town Centre Action Plan. Likely to include cycle maps, parking and signage of alternative routes |
| **Bypass** | Transport Planning and Infrastructure | Other | RDC/ECC | high | very high | low | long | Very high cost, long timescale and not currently included in the Local Plan. Scale of the AQ problem does not justify a bypass. However, could be appropriate to mitigate highways impact of planned development. |
| **Lower parking fees for EV** | Promoting Low Emission Transport | Other | RDC | low | low/ medium | low/medium | medium | Investigate for potential lower parking fees or season ticket fees for EV. Season tickets may be easier to enforce than day tickets which are pay and display. |
| **EV grants** | Promoting Low Emission Transport | Other | RDC/ECC | low | low | high | short | Investigate grants for Council and other vehicles, including taxis, from OLEV and communicate to relevant groups. Apply for any directly relevant to RDC or ECC that could impact upon AQMA |
| **Prioritise parking provision for EV** | Promoting Low Emission Transport | Priority parking for LEV's | RDC / ECC | low | low | high | short | Investigate potential for priority parking for EV - at station and high street (season ticket holders already given priority spaces nearest to station). |

| Action | EU Category | EU Classification | Lead Authority | AQ Impact | Cost | Feasibility | Timescale | Comments |
|---|---|---|---|---|---|---|---|---|
| **Install EV charging at council car parks** | Promoting Low Emission Transport | Procuring alternative Refuelling infrastructure to promote Low Emission Vehicles, EV recharging, Gas fuel recharging | RDC | low | low | medium/high | short | Install EV charging point at Council car park |
| **Additional EV points** | Promoting Low Emission Transport | Procuring alternative Refuelling infrastructure to promote Low Emission Vehicles, EV recharging, Gas fuel recharging | RDC/ECC | low | low | high | short | Currently no public charging points in Rayleigh. ECC group aiming for provision of at least 1 point per district. |
| **Retain appropriate off road space for freight deliveries** | Freight and Delivery Management | Delivery and Service plans | ECC / RDC | low | low | high | short | Most deliveries at rear (Websters Way) and off road, so do not cause obstructions in AQMA. Probably no scope for improvement in terms of location or hours. AAP needs to protect deliveries at rear. Check and review existing delivery restrictions |
| **Delivery Hub** | Freight and Delivery Management | Freight Consolidation Centre | RDC | medium | High | low | long | Possible locations Brook Road or Fairglen Interchange (but not possible until long term improvements complete in 2031) considered. Scope to operate for Southend (soon to be AQMA) from same location. Fairglen may also be appropriate for Basildon (no AQMA). Experience elsewhere indicates unlikely to be feasible if voluntary. Not sufficient scale or implementable in the timeframe, so discounted. |

| Action | EU Category | EU Classification | Lead Authority | AQ Impact | Cost | Feasibility | Timescale | Comments |
|---|---|---|---|---|---|---|---|---|
| **Engage Public Health colleagues at district and county level** | Policy Guidance and Development Control | Other policy | RDC | low | very low | high | short | AQ not yet considered by public health colleagues. ECC Public Health on Steering Group and RDC officer now appointed (and AQ included in workplan). Need to raise AQ up their agenda by providing briefing to both ECC and RDC public health colleagues. |
| **Preferential employee mileage rate for vehicles with lower $CO_2$ emissions** | Promoting Low Emission Transport | Company Vehicle Procurement -Prioritising uptake of low emission vehicles | RDC | low | low | high | on-going | May actually encourage higher NOx emitting diesel vehicles because they generally have lower $CO_2$ emissions than petrol vehicles |
| **Sustainable Procurement** | Promoting Low Emission Transport | Public Vehicle Procurement -Prioritising uptake of low emission vehicles | RDC | low | low | high | on-going | RDC Sustainable Procurement Strategy includes a commitment that, "*New cars purchased for the Council Fleet should have the lowest emissions standard possible whilst remaining fit for purpose.*" |
| **Home working for RDC employees** | Promoting Travel Alternatives | Encourage / Facilitate home-working | RDC | low | low | high | on-going | RDC facilitate home working for employees |
| **RDC staff charged for parking** | Traffic Management | Workplace Parking Levy, Parking Enforcement on highway | RDC | low | low | high | on-going | RDC charge staff for parking at council offices |
| **Promote LPG** | Promoting Low Emission Transport | Procuring alternative Refuelling infrastructure to promote Low Emission Vehicles, EV recharging, Gas fuel recharging | RDC | low | low | high | short | 1 petrol station in AQMA has LPG refuelling infrastructure/ promote in other awareness raising information |

| Action | EU Category | EU Classification | Lead Authority | AQ Impact | Cost | Feasibility | Timescale | Comments |
|---|---|---|---|---|---|---|---|---|
| **Monitoring** | Public Information | Other | RDC | low | low | high | short/medium | Currently monitoring using diffusion tubes at a number of roadside locations. 6-month automatic monitoring campaigns at a roadside site. Need to implement monitoring at building facades so that accurate information available to support revokation of AQMA. Will need to measure 3 years compliance (based on good quality data) at these locations before AQMA can be revoked. |
| **Route based strategies B1013 and A1015** | Traffic Management | Other | ECC | low | high | medium | long | No current funding but aspiration to consider measures to improve travel times. Likely to include walking/cycling measures |
| **Planning policy ENV5 (LDP)** | Policy Guidance and Development Control | Air Quality Planning and Policy Guidance | RDC | low | low | high | on-going | Planning policy ENV5 (LDP) - "new residential development will be restricted in AQMAs in order to reduce public exposure to poor air quality. In areas where poor air quality threatens to undermine public health and quality of life, the Council will seek to reduce the impact of poor air quality on receptors in that area and to address the cause of the poor air quality. Proposed development will be required to include measures to ensure it does not have an adverse impact on air quality". Policy has been used to refuse a development, where no information about exposure to poor air quality was provided (14/00888/FUL). |
| **Air Quality Assessments required if significant emissions to air or near existing source** | Policy Guidance and Development Control | Other policy | RDC | low | low | high | on-going | Assessments requested as required |
| **Ensure air quality impacts on and in AQMA considered in Local Plan evidence base (South Essex)** | Policy Guidance and Development Control | Air Quality Planning and Policy Guidance | RDC/ECC | low | low | high | short | ECC transport attends fortnightly meetings. RDC EH to be copied in on minutes. |

| Action | EU Category | EU Classification | Lead Authority | AQ Impact | Cost | Feasibility | Timescale | Comments |
|---|---|---|---|---|---|---|---|---|
| **Continue active engagement with Development Plan process** | Policy Guidance and Development Control | Air Quality Planning and Policy Guidance | RDC/ECC | low | low | high | short/medium | AQ officer at RDC and ECC transport officers already actively involved in process. Need to ensure that AQ officer is copied into all relevant meeting minutes. Engagement to continue to ensure that impacts of growth upon the AQMA are adequately considered and mitigated. |
| **Develop a local planning framework** | Policy Guidance and Development Control | Air Quality Planning and Policy Guidance | RDC/ECC | low | low | medium | short | Needed to ensure that impacts of new developments upon AQMA and appropriate mitigation measures are considered consistently in all applications. ECC review applications with Transport Assessments using a checklist. Now prioritising measures to maximise sustainable transport 1st, infrastructure 2nd. Alternative approach could be to add considerations to this checklist, although this wouldn't include smaller applications. |
| **Ensure ALL new receptors introduced in AQMA are considered** | Policy Guidance and Development Control | Air Quality Planning and Policy Guidance | RDC | low | low | high | short | Investigate mechanism for ensuring that new sensitive receptors introduced in the AQMA via permitted development have appropriate air quality assessments and mitigation. Update planning officers on AQMA and Action Plan |
| **Promote EV in new developments** | Policy Guidance and Development Control | Air Quality Planning and Policy Guidance | RDC/ECC | low | low | high | short | Need to include appropriate policy in emerging Local Plan |
| **Hold Sustainable Travel Conference in Rayleigh** | Public Information | Other | RDC/ECC | low | very low | high | short | ECC holds occasional Sustainable Travel Conferences. Aim to hold the next one in Rayleigh. |

| Action | EU Category | EU Classification | Lead Authority | AQ Impact | Cost | Feasibility | Timescale | Comments |
|---|---|---|---|---|---|---|---|---|
| **Promote Air Quality Action Plan and awareness in Rayleigh** | Public Information | Via the Internet | RDC | low | very low | high | short | Make RDC comms aware of AQAP and any updates, to allow them to distribute information via existing channels. Consider an event or awareness campaign using existing channels |
| **EssexAir website** | Policy Guidance and Development Control | Other policy | Essex Air | low | low | high | on-going | EssexAir consists of local councils, Essex County Council, Stanstead Airport and other interested parties. The website provides information about monitoring, reports and health advice. Quarterly meeting where information shared on AQ, including measures implemented. ECC transport officer attends and collects to data |
| **Daily pollution forecasts** | Public Information | Via the Internet | Essex Air | low | low | high | on-going | Provided on EssexAir website and twitter feed (based on Defra forecasts) |
| **Rail/bus/cycle improvements aimed at bridging the gap between sustainable transport modes. LSTF funded.** | Transport Planning and Infrastructure | Public transport improvements-interchanges stations and services | ECC | low | medium | high | on-going | Realtime passenger information installed at bus stops and rail stations. Secure cycle storage installed. Partnership has been developed with Abellio Greater Anglia (now Abellio East Anglia) who have match funded some of the improvements. Specific Measures to be installed at Rayleigh Rail Station:<br>• DDA Ramp and improved lighting<br>• Environmental improvements to Station Forecourt area<br>• New passenger shelter on platform<br>• Additional cycle shelters on land to north east of station building, including moving existing cycle parking to this area<br>• Additional cycle shelters on north side of station - (located off “The Approach” car park)<br>• Motorcycle parking - increased motorcycle parking by moving cycle parking and installing racks to secure motorcycles to.<br>• Additional bus shelters and Real Time Information |

| Action | EU Category | EU Classification | Lead Authority | AQ Impact | Cost | Feasibility | Timescale | Comments |
|---|---|---|---|---|---|---|---|---|
| **Marketing of Rail/bus/cycle improvements installed using previous LTSF funding** | Promoting Travel Alternatives | Promote use of rail and inland waterways | ECC | low | medium | medium | medium | Sustainable Transition Fund bid was not successful. Will look to identify and apply for alternative funding |
| **Taxi Emission Incentives** | Promoting Low Emission Transport | Taxi emission incentives | RDC | low | very low | high | short | Make taxi companies aware of possible grants |
| **Taxi Licencing** | Promoting Low Emission Transport | Taxi Licensing conditions | RDC | low | very low | ongoing | ongoing | Current conditions (January 2016) minimum age 6 years when first licenced and not re-licenced if more than 10 years old. |
| **Taxi Licencing** | Promoting Low Emission Transport | Taxi Licensing conditions | RDC | low | very low | low | medium | Current conditions (January 2016) maximum age 6 years when first licenced and not re-licenced if more than 10 years old. Not appropriate to reduce the age limit further at this time. May consider requiring lower age limit, or conditions that encourage low emission vehicles in the future. |

| Action | EU Category | EU Classification | Lead Authority | AQ Impact | Cost | Feasibility | Timescale | Comments |
|---|---|---|---|---|---|---|---|---|
| **Collection of detailed baseline traffic flow, speed and congestion data, construction of VISSIM model and testing of options** | Traffic Management | UTC, Congestion management, traffic reduction | ECC | low | complete | complete | complete | Local Highways Panel has funded transport modelling work to consider options for changes to traffic management in the town centre area. Aim to secure funding via contributions as developments come forward." *A general conclusion is that the network in the town is very congested during peak periods, to an extent that it can only be addressed by a significant change of demand in traffic travelling into and through the town. Relative modest Rayleigh Town Centre VISSIM modelling measures as tested and recommended here have been shown to bring some benefits but it should not be expected to bring noticeable and significant long-term relief during peak weekday periods. The improved network and junction performance on a Saturday does indicated that the measures are effective during periods of slightly lower flow and can likely be expected to also benefit week day inter-peak periods.*" |
| **Re-route traffic via Daws Heath Road and Castle Road to avoid Eastwood Road/High St** | Traffic Management | UTC, Congestion management, traffic reduction | ECC | low/medium | discounted | discounted | discounted | Identified as part LHP work. VISSIM model indicated effectiveness would be limited and Castle Road likely to be sensitive to increased traffic. Modelling also showed that traffic queues on High Road A129 would exceed 4 miles due to the necessity to introduce signals at the junction of Castle Road / High Road. |
| **Extensive re-routing of traffic, creating one-way sections of Castle Road and Eastwood Road (Option 3)** | Traffic Management | UTC, Congestion management, traffic reduction | ECC | low/medium | discounted | discounted | discounted | VISSIM model shows would increase congestion, so option rejected |
| **Implementing bus laybys along High Road and Hockley Road** | Traffic Management | UTC, Congestion management, traffic reduction | ECC | low/medium | discounted | discounted | discounted | VISSIM model indicated could be effective. Identified as part LHP work. No physical room to implement |
| **Use cleaner buses through AQMA** | Vehicle Fleet Efficiency | Promoting Low Emission Public Transport | RDC | low | very low | high/medium | short | Contact operators to determine whether cleanest buses in fleet could be used preferentially on routes through the AQMA |

| Action | EU Category | EU Classification | Lead Authority | AQ Impact | Cost | Feasibility | Timescale | Comments |
|---|---|---|---|---|---|---|---|---|
| **Minimise bus waiting times in AQMA** | Vehicle Fleet Efficiency | Promoting Low Emission Public Transport | RDC | low | very low | high/medium | short | Contact operators to determine whether buses can minimise idling times in the AQMA |
| **Changes to pedestrian crossing points** | Traffic Management | UTC, Congestion management, traffic reduction | ECC | low/medium | medium | medium | medium subject to funding | Conversion of zebra crossings to Puffin - High Road/Eastwood Road and High Road North (nr Castle Road) most beneficial. Identified as part LHP work. Aim to secure funding via contributions as developments come forward. |
| **Home to station travel plans** | Promoting Travel Alternatives | Personalised Travel Planning | ECC/train operator | low | low | high | medium? | Personalised home to station travel plans have been carried out at two stations in Essex. This could be effective for Rayleigh passengers to minimise car trips through the AQMA. Will be looked into once new rail franchise announced. |
| **Travel Information Packs - new developments** | Public Information | Via leaflets | ECC | low | low | high | ongoing | Travel Information Packs required for all new developments. Packs have been supplied to small developments in Rayleigh and larger development in Hawkwell, much of the travel from which will be to or via Rayleigh. Could investigate inclusion of air quality information within the packs. |
| **Travel Plans - new developments** | Promoting Travel Alternatives | Personalised Travel Planning | RDC | low | low | medium | short/medium | Large developments permitted to west and north. Potential for targetted travel plans or packs for new residents. May need to include requirement in Local Plan. |

| Action | EU Category | EU Classification | Lead Authority | AQ Impact | Cost | Feasibility | Timescale | Comments |
|---|---|---|---|---|---|---|---|---|
| **Rayleigh school travel plans** | Promoting Travel Alternatives | School Travel Plans | | low | low | high | Implementable in the short-term. Drawing on ECC/Sustrans resources | 2 secondary schools and up to 4 primary schools near AQMA. Targeted travel planning in schools in conjunction with raising awareness air quality has potential to reduce number of trips through the AQMA. Needs to include information about in-car exposure to air pollution. |
| **Current School Travel Plans** | Promoting Travel Alternatives | School Travel Plans | ECC | low | on-going | on-going | on-going | Essex CC work with schools to develop travel plans. Has only worked with Wyburns Primary in Rayleigh to date. Has also worked successfully with Riverside Primary School in Hullbridge. Whilst the school is not Rayleigh, it is encouraging active travel habits in pupils that will go on to secondary school in the town. Pupils will not need to travel through the AQMA to get from Hullbridge to the secondary schools (Fitzwimarc and Sweyne) and thus the impact on the AQMA will be extremely limited. |
| **Business Travel Plan Accreditation** | Promoting Travel Alternatives | Workplace Travel Planning | ECC | low | on-going | on-going | on-going | Essex County Councils' Sustainable Travel Planning team is working with businesses and schools to develop Travel Plans that deliver measurable progression in achieving modal shift. The County Council is willing to work with employers (with 50 staff members or more) on the development and progression of their Travel Plans. There is also the opportunity for businesses' to bid for funding (up to the value of £2,000) on successful completion of the programme. Travel Plans are awarded bronze, silver gold or platinum standards. No large employers in Rayleigh to target |
| **New Business Travel Plans in Rayleigh** | Promoting Travel Alternatives | Workplace Travel Planning | ECC | low | low | high/medium | short | No large employers in Rayleigh identified by Steering Group. ECC have indicated that they have a list of potential targets in Rochford, which could be pursued. |

| Action | EU Category | EU Classification | Lead Authority | AQ Impact | Cost | Feasibility | Timescale | Comments |
|---|---|---|---|---|---|---|---|---|
| **New and improved pedestrian signage should be introduced for key destinations and attractions, including the rail station, the town centre, the Mount, the Windmill, Holy Trinity Church and the Dutch Cottage** | Public Information | Via other mechanisms | ECC / RDC | low | low | medium | medium | Policy in AAP |

# A5 Reasons for Not Pursuing Action Plan Measures

| Action Category | Action Description | Reason action is not being pursued (including Stakeholder views) |
|---|---|---|
| **Promoting Low Emission Transport** | Clean Air Zone | Budget and timescale not feasible. Rayleigh not expected to be on list of Clean Air Zones promoted by Defra |
| **Alternatives to private vehicle use** | Park & Ride | Not appropriate for the size of the town or the scale of the problem |
| **Traffic Management** | Reduce speed from 30 to 20 mph | Priority 1 route, so not appropriate. Traffic already slow for much of the day, so unlikely to have significant air quality impact |
| **Fleet efficiency and recognition schemes** | Ecostars | No obvious businesses to target |
| **Traffic Management** | Re-route traffic via Daws Heath Road and Castle Road to avoid Eastwood Road/High St | Identified as part LHP work. VISSIM model indicated effectiveness would be limited and Castle Road likely to be sensitive to increased traffic. . |
| **Traffic Management** | Extensive re-routing of traffic, creating one-way sections of Castle Road and Eastwood Road (Option 3) | VISSIM model shows would increase congestion, so option rejected |
| **Environmental Permits** | Control Industrial sources | No permitted sources of NOx in or near the AQMA |
| **Freight and Delivery Management** | Quiet & out of hours delivery | Freight deliveries not causing congestion by blocking road and responsible for small proportion of emissions |
| **Freight and Delivery Management** | Route Management Plans/ Strategic routing strategy for HGV's | No alternative routes. Freight responsible for small proportion of emissions |
| **Policy Guidance and Development Control** | Low Emissions Strategy | Not appropriate for the scale of the problem |
| **Promoting Low Emission Plant** | | No notable sources in AQMA |
| **Traffic Management** | Anti-idling enforcement | Not perceived as an issue in Rayleigh |
| **Traffic Management** | Road User Charging (RUC)/ Congestion charging | Scale of the problem does not warrant the costs of implementation and enforcement |
| **Vehicle Fleet Efficiency** | Testing Vehicle Emissions | Not appropriate for the scale of the problem |
| **Transport Planning and Infrastructure** | Bus route improvements | No road space to implement improvements to laybys or bus lanes |
| **Transport Planning and Infrastructure** | Public cycle hire scheme | Town not big enough to support |
| **Vehicle Fleet Efficiency** | Driver training and ECO driving aids | No obvious companies to target |
| **Transport Planning and Infrastructure** | Additional vegetation | No suitable locations within the AQMA, any vegetation planted would not become mature in the timescale required. |
| **Transport Planning and** | Installation of air filters at bus | AQMA has been declared due to exceedences of the annual mean nitrogen dioxide objective, |

| | | |
|---|---|---|
| **Infrastructure** | stops | bus stops are not relevant exposure for the annual mean objective and therefore filters at these locations would not assist in achieving the objectives upon the AQMA. |
| **Policy Guidance and Development Control** | Restriction of outdoor seating on pavements | AQMA has been declared due to exceedences of the annual mean nitrogen dioxide objective, outdoor seating areas are not relevant exposure for the annual mean objective and therefore restriction of these activities would not assist in achieving the objectives upon the AQMA. |
| **Traffic Management** | Shared space | High Street/High Road are a Priority 1 route, so not appropriate |

# A6 Professional Experience

## Prof. Duncan Laxen, BSc (Hons) MSc PhD MIEnvSc FIAQM

Prof Laxen is the Managing Director of Air Quality Consultants, a company which he founded in 1993. He has over forty years' experience in environmental sciences and has been a member of Defra's Air Quality Expert Group and the Department of Health's Committee on the Medical Effects of Air Pollution. He has been involved in major studies of air quality, including nitrogen dioxide, lead, dust, acid rain, $PM_{10}$, $PM_{2.5}$ and ozone and was responsible for setting up the UK's urban air quality monitoring network. Prof Laxen has been responsible for appraisals of all local authorities' air quality Review & Assessment reports and for providing guidance and support to local authorities carrying out their local air quality management duties. He has carried out air quality assessments for power stations; road schemes; ports; airports; railways; mineral and landfill sites; and residential/commercial developments. He has also been involved in numerous investigations into industrial emissions; ambient air quality; indoor air quality; nuisance dust and transport emissions. Prof Laxen has prepared specialist reviews on air quality topics and contributed to the development of air quality management in the UK. He has been an expert witness at numerous Public Inquiries, published over 70 scientific papers and given numerous presentations at conferences. He is a Fellow of the Institute of Air Quality Management.

## Penny Wilson, BSc (Hons) CSci MIEnvSc MIAQM

Ms Wilson is a Principal Consultant with AQC, with more than fifteen years' relevant experience in the field of air quality. She has been responsible for air quality assessments of a wide range of development projects, covering retail, housing, roads, ports, railways and airports. She has also prepared air quality review and assessment reports and air quality action plans for local authorities and appraised local authority assessments and air quality grant applications on behalf of the UK governments. Ms Wilson has arranged air quality and dust monitoring programmes and carried out dust and odour assessments. She has provided expert witness services for planning appeals and is Member of the Institute of Air Quality Management and a Chartered Scientist.

Full CVs are available at www.aqconsultants.co.uk.