

CITY OF
Lincoln
COUNCIL

City of Lincoln Council Interim Air Quality Action Plan

In fulfilment of Part IV of the
Environment Act 1995
Local Air Quality Management

Date 2019

City of Lincoln Council

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Executive Summary

This interim Air Quality Action Plan (AQAP) has been produced as part of our statutory duties required by the Local Air Quality Management framework. It outlines some of the actions we will take to improve air quality in Lincoln between 2019 and 2024. This Action Plan update is being issued as an interim document with a view to undertaking a further review of the Action Plan towards the end of 2019 to take account of the emerging Lincoln Transport Strategy (LTS) update, being led by Lincolnshire County Council.

The Action Plan updates the previous version of the plan issued in 2006. Projects implemented by the City Council, County Council and others that have contributed to the delivery of the 2006 action plan include:

- Development of the Transport Hub
- Using the planning regime to reduce impacts from development (e.g. by requiring the installation of electric vehicle recharge points)
- The Hirebike scheme set up through Access LN6 (now Access Lincoln)
- Traffic management schemes to reduce congestion around some of Lincoln's busier road junctions (e.g. Broadgate/Silver Street, Canwick Road/South Park) and rail crossings (development of the East-West Link Road)

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 air pollution in the UK is estimated to be around £16 billion³. The City of Lincoln Council is committed to reducing the exposure of people in Lincoln to poor air quality in order to improve health.

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

Due to the ongoing review of LTS, we have developed this interim plan to focus on measures that can be implemented irrespective of the LTS review outcomes. The proposed measures fall under the following broad topics:

- Policy guidance and development control
- Promoting low emission plant;
- Promoting low emission transport
- Promoting travel alternatives
- Traffic management
- Vehicle fleet efficiency

Our priorities include reducing the amount of HGVs passing through the city by supporting the implementation of the Lincoln Eastern Bypass; managing development in a way that minimises any detrimental air quality impact; and promoting more sustainable ways of travel.

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 the City of Lincoln Council's direct influence.

Responsibilities and Commitment

This AQAP was prepared by the Environmental Health (Pollution Control Team) of the City of Lincoln Council with the support of officers and members of the council's Low Carbon Task Force and officers from Lincolnshire County Council's local transport planning and strategic accessibility and growth teams.

This AQAP has been approved by:

<Details of Council committees who have approved the interim AQAP.

This AQAP will be subject to an annual review, appraisal of progress and reporting to the authority's Low Carbon Task Force and Policy Scrutiny Committee. Progress each year will be reported in the Annual Status Reports (ASRs) produced by the City of Lincoln Council, as part of our statutory Local Air Quality Management duties.

City of Lincoln Council

If you have any comments on this AQAP please send them to the Council's Environmental Health (Pollution Control) Team at:

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Table of Contents

| | |
|---|-----------|
| Executive Summary | i |
| Responsibilities and Commitment | ii |
| 1 Introduction | 1 |
| 2 Summary of Current Air Quality in City of Lincoln Council | 2 |
| 3 City of Lincoln Council’s Air Quality Priorities | 3 |
| 3.1 Public Health Context..... | 3 |
| 3.2 Planning and Policy Context | 3 |
| 3.3 Source Apportionment..... | 6 |
| 3.4 Required Reduction in Emissions | 8 |
| 3.5 Key Priorities | 9 |
| 4 Development and Implementation of the City of Lincoln Council’s AQAP | 10 |
| 4.1 Consultation and Stakeholder Engagement..... | 10 |
| 4.2 Steering Group | 11 |
| 5 AQAP Measures | 12 |
| 6 Next Steps..... | 18 |
| Appendix A: Response to Consultation..... | 19 |
| Appendix B: Progress on Measures to Improve Air Quality (as reported in CoLC’s 2018 Annual Status Report)..... | 21 |
| Glossary of Terms..... | 31 |

List of Tables

| | |
|--|----|
| Table 4.1 – Consultation Undertaken | 10 |
| Table 5.1 – Air Quality Action Plan Measures | 13 |

List of Figures

| |
|--|
| Figure 3.1 – Detailed Source Apportionment of NO ₂ Concentrations |
|--|

1 Introduction

This report outlines some of the actions that the City of Lincoln Council and its partners will seek to deliver between 2019 and 2024 in order to reduce concentrations of air pollutants and exposure to air pollution; thereby positively impacting on the health and quality of life of residents and visitors to the city. Further measures will be developed following the completion of the current review of the Lincoln Transport Strategy and will be added to the city's Air Quality Action Plan.

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

The Action Plan will normally be reviewed every five years at the latest and progress on measures set out within this Plan will be reported on annually within the City Council's air quality ASR.

2 Summary of Current Air Quality in City of Lincoln

Historically, there have been two Air Quality Management Areas (AQMAs) designated within the City of Lincoln; the Lincoln NO₂ AQMA was first designated in 2001 and revised in 2014 and covers the road network within the city centre and the major arterial routes, and the Lincoln PM₁₀ AQMA designated in 2008 which encompassed the entire city. Both AQMAs were associated with elevated road traffic emissions.

A Detailed Modelling Assessment finalised in March 2017 concluded that the existing NO₂ AQMA required amending with a new, smaller, boundary based around the city centre, and that the PM₁₀ AQMA should be revoked due to low monitored and modelled concentrations of this pollutant across the city. These recommendations were implemented in August 2018, with Orders being issued to formally amend the existing NO₂ AQMA and revoke the PM₁₀ AQMA in its entirety.

A further Detailed Modelling Assessment was undertaken in 2018, to take account of recent changes in the road network, including the newly created East West Link Road and the Transport Hub, using updated traffic data from Lincolnshire County Council's revised road traffic model for Lincoln. This assessment confirmed the need to retain the amended NO₂ AQMA and reiterated that the PM₁₀ objectives were being complied with throughout the city.

The City of Lincoln Council maintains an air quality monitoring network, utilising both continuous analysers and passive samplers to gather data on NO₂ and PM₁₀ levels within the city. Details of the monitoring and the current state of air quality within the city can be found in the Council's latest Annual Status Report, which can be viewed at <https://www.lincoln.gov.uk/resident/litter-public-land-and-flytipping/air-quality-and-pollution/>.

3 City of Lincoln Council's Air Quality Priorities

1.1 Public Health Context

Public Health England advise that air pollution is the largest environmental contributor to the burden of disease that can affect the general population. Health impacts associated with air pollution include cardiovascular disease, lung cancer, respiratory disease, asthma and stroke. Evidence suggests that these health impacts are felt disproportionately in the young, the elderly and those with existing conditions, as well as the most deprived within our communities.

The main risks are related to long-term exposure to particulate air pollution (PM_{2.5}) and nitrogen dioxide (NO₂). The evidence of the health impacts associated with elevated NO₂ has strengthened substantially in recent years. There is increasing evidence that links long-term exposure to NO₂ to mortality⁴.

It is estimated that, in the UK, the mortality burden of exposure to human-made air pollution has an annual effect equivalent to between 28,000 and 36,000 deaths a year. The annual health costs have been estimated, by Defra, to be in the region of £16 billion per year. As a comparison the health costs arising from obesity have been estimated to be around £10 billion per year.

1.2 Planning and Policy Context

The National Planning Policy Framework (NPPF)⁵ highlights the important role that land use planning has to play in improving and safeguarding the quality of the air we breathe.

Paragraph 170 of the NPPF confirms that *“planning policies and decisions should contribute to and enhance the natural and local environment”* and this should include *“preventing new and existing development from contributing to, being put at*

⁴ Committee on the Medical Effects of Air Pollutants (COMEAP) - Statement on the evidence for the effects of nitrogen dioxide on health. Available at <https://www.gov.uk/government/publications/nitrogen-dioxide-health-effects-of-exposure>

⁵ <https://www.gov.uk/government/publications/national-planning-policy-framework-2>

unacceptable risk from, or being adversely affected by, unacceptable levels of soil, air, water or noise pollution or land instability. Development should, wherever possible, help to improve local environmental conditions such as air and water quality, taking into account relevant information such as river basin management plans”.

Paragraph 181 goes on to state:

“Planning policies and decisions should sustain and contribute towards compliance with relevant limit values or national objectives for pollutants, taking into account the presence of Air Quality Management Areas and Clean Air Zones, and the cumulative impacts from individual sites in local areas. Opportunities to improve air quality or mitigate impacts should be identified, such as through traffic and travel management, and green infrastructure provision and enhancement. So far as possible these opportunities should be considered at the plan-making stage, to ensure a strategic approach and limit the need for issues to be reconsidered when determining individual applications. Planning decisions should ensure that any new development in Air Quality Management Areas and Clean Air Zones is consistent with the local air quality action plan.”

At a local level, the Central Lincolnshire Local Plan⁶, adopted in April 2017, sets out a vision and objectives for creating a prosperous, stronger and sustainable Central Lincolnshire. One of the stated overarching objectives of the Local Plan is:

“k. Pollution: To minimise pollution (air, noise and light) and improve air quality”.

Further to this, Policy LP26 (Design and Amenity) of the adopted Local Plan states:

“The amenities which all existing and future occupants of neighbouring land and buildings may reasonably expect to enjoy must not be unduly harmed by or as a result of development.

Proposals should demonstrate, where applicable and to a degree proportionate to the proposal, how the following matters have been considered, in relation to both the construction and life of the development:

⁶ <https://www.n-kesteven.gov.uk/central-lincolnshire/local-plan/>

...s. Adverse impact upon air quality from odour, fumes, smoke, dust and other sources.”

The Local Plan also supports, through a number of policies, the move towards sustainable modes of transport that will bring with them a beneficial impact on air quality.

The current Lincolnshire Local Transport Plan, LTP4⁷, and associated Lincoln Integrated Transport Strategy⁸ (LITS), recognise the importance of a sustainable transport strategy in achieving good air quality within the city. One of the stated objectives in the LITS, is:

“SO7: To improve overall air quality and noise levels within the study area, especially in the Air Quality Management Area in Lincoln, by the removal of unnecessary traffic by:

- Removing through traffic*
- Reducing local journeys by car*
- Other traffic management measures”*

The transport strategy for Lincoln is currently under review by Lincolnshire County Council and its partners with the view to issuing an updated strategy towards the end of 2019. With road traffic being the main contributor to exceedances within affected parts of the city (see 3.2 – Source Apportionment below), the outcomes of the revised LTS will clearly have the potential to significantly influence air quality within the AQMA and wider area.

The City of Lincoln Council is part of the East Midlands Air Quality Network, which is facilitated by Public Health England (East Midlands). Part of the work undertaken by EMAQN has been to produce a development guide⁹ that seeks to ensure that air quality and its associated health impacts are fully considered through the planning

⁷ <https://www.lincolnshire.gov.uk/transport-and-roads/strategy-and-policy/local-transport-plan/34380.article>

⁸ <https://www.lincolnshire.gov.uk/transport-and-roads/strategy-and-policy/lincoln-transport-strategy/81505.article>

⁹ East Midlands Air Quality Network 'Air Quality and Emissions Mitigation - Guidance for Developers (March 2019)'

process for new developments, including the cumulative impacts of the numerous small scale developments that may not have a significant impact on their own.

1.3 Source Apportionment

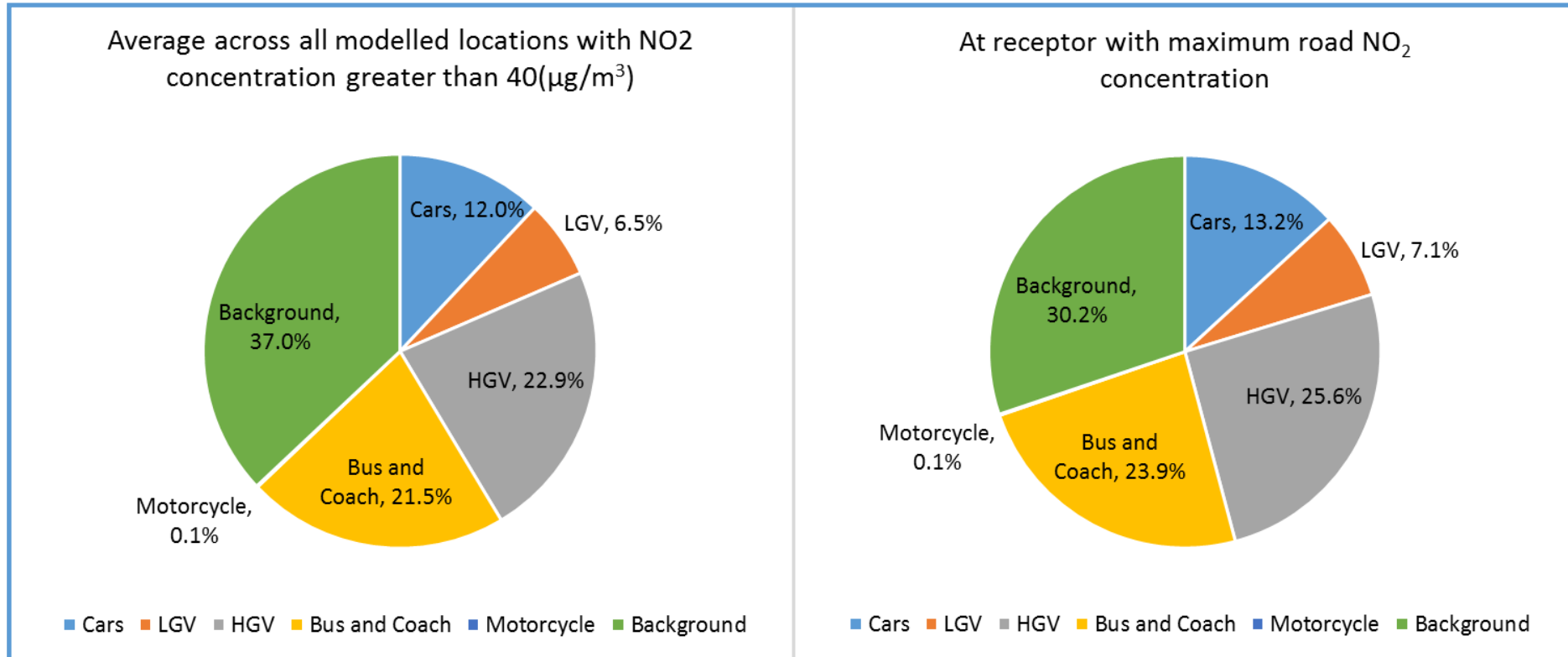
The AQAP measures presented in this report are intended to be targeted towards the predominant sources of emissions within the City of Lincoln Council's area.

A source apportionment exercise was carried out by the City Council as part of its most recent Detailed Modelling exercise in 2018. This identified that within the AQMA, the percentage source contributions were as detailed in Figure 3.1 below.

Figure 3.1 shows that when considering the average NO₂ concentration at locations with a NO₂ concentration greater than 40µg/m³, i.e. above the annual air quality objective, the road traffic contribution accounts for 63.0% of the total NO₂. Of this total, HGVs account for 22.9% and buses and coaches account for 21.5%.

At the receptor with the maximum modelled road NO₂ concentration, road traffic accounts for 69.8% of the overall NO₂, with HGVs apportioned for 25.6% and buses and coaches a further 23.9%.

Figure 3.1 – Detailed Source Apportionment of NO₂ Concentrations



1.4 Required Reduction in Emissions

The detailed modelling exercise undertaken in 2018 predicted that the worst case receptor location, based on 2017 data, was on Canwick Road close to the junction with South Park (this location falls outside the existing Air Quality Management Area). The predicted annual mean concentration of NO₂ for 2017 at this location was 50.8µg/m³. As such, a reduction in NO₂ of 10.8µg/m³ would be required to comply with the national air quality objective of 40µg/m³ at this worst case receptor. This equates to a reduction in road contribution NO_x emissions of 34% (or 27.3µg/m³)¹⁰.

(N.B. It should be noted that no monitoring data was available for this predicted worst case location in order to verify the model outputs at the time of the modelling exercise. The nearest monitoring location was the Canwick Road continuous NO₂ analyser, which forms part of Defra's Automatic Urban Rural Network, approximately 135 metres to the north. Data from this monitoring station for 2017, showed significantly lower levels of nitrogen dioxide than those modelled for the worst case receptor and were compliant with the air quality objectives. This may be an indication that the model is over predicting at the modelled worst case receptor, although the Canwick Road AURN site will potentially be less influenced by the major junction. In order to check the accuracy of the model output at the Canwick Road/South Park junction, monitoring is now being undertaken at this modelled worst case receptor location. Three months of data was obtained from the new monitoring location at the end of 2018. The raw data has been annualised and bias adjusted, in accordance with the methodology recommended in Defra's Technical Guidance Note (LAQM.TG(16)), and the adjusted results indicate that the levels at this modelled worst case location are comparable to those monitored at the nearby AURN site and, therefore, are significantly less than predicted by the model, as well as being compliant with the air quality objectives.)

The worst case location within the existing Air Quality Management Area where monitoring data is available for verification is on Broadgate, which requires a reduction

¹⁰ Calculated using the methodology detailed Box 7.6 of LAQM Technical Guidance (TG16)

in NO₂ of 5.3µg/m³ in order to comply with the national air quality objective of 40µg/m³. This equates to a reduction in road contribution NO_x emissions of 21% (or 13µg/m³)¹¹.

1.5 Key Priorities

As summarised in section 3.3 above, the source apportionment exercise undertaken as part of the Council's latest detailed assessment confirms that road traffic is the most significant source of NO₂ at the receptor locations currently identified as exceeding the annual mean air quality objective. Furthermore, the 2018 detailed assessment highlighted that HGVs and buses/coaches are responsible for around 70% of the total road traffic contribution at these locations.

As such, the focus of the improvement measures over the next five years should primarily seek to address road traffic contributions within the existing AQMA, with particular emphasis on reducing the contribution of HGVs and buses/coaches along the A15 as it passes through the centre of the city. Whilst the developing LTS will seek to deal with these issues on a wider scale, the key priorities within this interim Air Quality Action Plan focus on both committed infrastructure schemes and measures that the City Council can implement directly:

- Priority 1 – Reduction in through traffic (*particularly in relation to HGVs*)
- Priority 2 – Improvement in vehicle emissions regularly entering the AQMA (*e.g. the use of the taxi/private hire licensing regimes*)
- Priority 3 – Manage development in a way that minimises any detrimental impact on the AQMA
- Priority 4 – Improvements in the City Council's transport emissions (*e.g. adoption of a City Council travel plan and other measures to support a move away from single occupancy private vehicle use.*)
- Priority 5 – Improvements in the City Council's non-transport related emissions (*e.g. reduction in domestic heating emissions and reductions through procurement practices*)

It is likely that additional priority measures will be developed as the review of the Lincoln Transport Strategy develops and, where appropriate, these will be included in subsequent revision of this AQAP.

¹¹ Calculated using the methodology detailed Box 7.6 of LAQM Technical Guidance (TG16)

In addition to the above priorities, there are a number of other ongoing actions that are supported by the City Council, its partners and other stakeholders that are likely to have a beneficial impact on the city’s air quality. These additional improvement measures are listed in Appendix B of this report.

2 Development and Implementation of the City of Lincoln Council’s AQAP

2.1 Consultation and Stakeholder Engagement

In developing this interim AQAP, we have liaised with other local authorities, agencies and business groups to improve local air quality. Schedule 11 of the Environment Act 1995 requires local authorities to consult the bodies listed in Table 4.1.

The responses to our consultation stakeholder engagement are given in Appendix A.

Table 2.1 – Consultation Undertaken

| Yes/No | Consultee |
|--------|---|
| Yes | the Secretary of State |
| Yes | the Environment Agency |
| Yes | Lincolnshire County Council (the highways authority) |
| Yes | North Kesteven DC and West Lindsey DC (neighbouring local authorities) |
| Yes | bodies representing local business interests and other organisations as appropriate |

2.2 Steering Group

As part of developing this Action Plan, a steering group was set up to explore the actions that could be implemented to improve air quality within the Council's Air Quality Management Area and the city as a whole. This steering group will also oversee the implementation and monitoring of the actions contained within this and future revisions of the Action Plan.

Due to the close association between air quality and climate change, the steering group role forms part of the City Council's Low Carbon Task Force's agenda.

This group is chaired by the council's Major Developments Director and consists of officers covering the following service areas:

- regeneration and major developments
- procurement
- fleet management
- development control
- facilities management
- environmental protection
- housing maintenance and investment
- planning policy

The group also has member involvement from the Portfolio Holder for Remarkable Place and the Sustainability Advocate.

3 AQAP Measures

Table 5.1 shows the City of Lincoln Council's AQAP measures. It contains:

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

(NB: Please see future ASRs for regular annual updates on implementation of these measures.)

Appendix B also contains an extract from the City Council's 2018 Annual Status Report which details progress on implementing a number of measures that have previously been identified as having a beneficial impact on air quality within the city.

Table 3.1 – Air Quality Action Plan Measures

| Measure No. | Measure | EU Category | EU Classification | Lead Authority | Planning Phase | Implementation Phase | Key Performance Indicator | Target Pollution Reduction in the AQMA | Progress to Date | Estimated Completion Date | Comments |
|-------------|--|---|--|-----------------------------|------------------------|-------------------------|---|---|--|--|---|
| 1 | Lincoln Eastern Bypass | Traffic Management | Strategic highway improvements | Lincolnshire County Council | 2011-2015 | 2016-2020 | Change in AADT, including split for HDV/LDV on Broadgate | 2.5µgm ⁻³ reduction at Broadgate (A15) monitoring location (see comments) | Construction commenced at the end of 2016. Project due to be completed May 2020. | May 2020 | The target pollution reduction is based on the “with” and “without” LEB scenarios contained within the Council’s latest detailed air quality assessment. |
| 2 | Adopt and implement East Midlands Air Quality Network’s ‘Air Quality and Emissions Mitigation – Planning Guidance’ | Policy Guidance and Development Control | Air Quality Planning and Policy Guidance | City of Lincoln Council | 2016-2018 | From March 2019 onwards | % of planning approvals issued in accordance with development guidance. | Not quantified | The final draft of the guidance document was issued by EMAQN in July 2018 and was updated in March 2019. | Ongoing following adoption of guidance | East Midlands Air Quality Network (EMAQN) is a group of environmental health, public health, planning and transport professionals who aim to improve air quality across the East Midlands |
| 3 | Review of Taxi Licencing Policy to include Emission Controls | Promoting Low Emission Transport | Taxi Licencing Conditions | City of Lincoln Council | Dec 2018 to March 2019 | From April 2019 onwards | % of private hire/taxi vehicles meeting Euro 6 (diesel) and Euro 4 (petrol) emissions standards or better | Not quantified* | None | Ongoing following adoption of revised policy | * Baseline emissions data for existing fleet requires calculating |
| 4 | Eco recognition scheme for taxi/private hire vehicles | Vehicle Fleet Efficiency | Fleet efficiency and recognition schemes | City of Lincoln Council | Dec 2018 to March 2019 | From July 2019 onwards | % of private vehicles/taxis registered with the recognition scheme | Not quantified | None | Ongoing following adoption of scheme | |

City of Lincoln Council

| Measure No. | Measure | EU Category | EU Classification | Lead Authority | Planning Phase | Implementation Phase | Key Performance Indicator | Target Pollution Reduction in the AQMA | Progress to Date | Estimated Completion Date | Comments |
|-------------|---|---|--|---|-----------------------------|----------------------|--|--|--|---|--|
| 5 | Review and implement CoLC Travel Plan | Promoting Travel Alternatives | Workplace Travel Planning | City of Lincoln Council | October 2018 Summer 2019 | Autumn 2019 | Specific indicators to be established as part of the Travel Plan review | Not quantified | Review agreed by Corporate Management Team in October 2018 | Ongoing following adoption of travel plan | Travel Plan last reviewed in 2013. Revised plan will be accredited by external body. |
| 6 | Develop and implement an air quality guide to supplement CoLC's Social Value Procurement Policy | Policy Guidance and Development Control | Sustainable Procurement Guidance | City of Lincoln Council | April 2019 to July 2019 | August 2019 onwards | Specific indicators to be established as part of the development of the guide. | Not quantified | None | Ongoing following adoption of agreed guidance | |
| 7 | Boiler Replacement Program for Council Housing Stock | Promoting Low Emission Plant | Public Procurement of stationary combustion sources | City of Lincoln Council | Completed | Ongoing | % of total no. of Council's housing stock fitted with low NOx boilers | Not quantified | 73.4% Boilers replaced with low NOx boilers since the start of the program | Ongoing replacement program | Funding for replacement program is secured and ring-fenced, with 400 replacements scheduled for 2019/2020. |
| 8 | Prepare a City of Lincoln Electric Vehicle Recharging Strategy | Promoting Low Emission Transport | Procuring alternative Refuelling infrastructure to promote Low Emission Vehicles, EV recharging, Gas fuel recharging | City of Lincoln Council | April 2019 to December 2019 | January 2020 onwards | Specific indicators to be established as part of the development of the strategy | Not quantified | None | Ongoing following adoption of agreed strategy | |
| 9 | Adoption of individual and business travel plans | Promoting Travel Alternatives | Personalised and workplace travel planning | Lincolnshire County Council and Lincoln Big | Completed | Ongoing | To be confirmed | Not quantified | To be confirmed | Ongoing | |

- ***Measure No.1 – Lincoln Eastern Bypass***

The Lincoln Eastern Bypass (LEB), which is currently under construction, is due to be completed in May 2020.

The City Council's 2018 detailed air quality assessment included modelling of pollution levels within the city's AQMA and connecting roads for the year 2021 (i.e. the first full year after the completion of the LEB) for two scenarios – one with the LEB in place and one without. The air quality model predicted that out of the 200 modelled receptor locations, 156 receptors are predicted to see improvements in NO₂ levels following the introduction of the LEB, with the greatest benefits being seen at locations on the A15 within the AQMA. At the remaining 44 receptor locations, 25 are likely to see no change in NO₂ concentrations and 19 receptors are predicted to experience slight increases following the opening of the LEB.

The detailed assessment predicts that the introduction of the LEB will reduce the annual mean concentration at the worst case receptor within the AQMA by 2.8µgm⁻³, a reduction of around 8.7%.

- ***Measure No.2 – Adoption of air quality and development guide***

All new developments have the potential to affect air quality within Lincoln's AQMA and the wider city, which can be to the detriment of the health of the city's population. Local planning policy and development management decisions therefore have a key role to play in ensuring that the city grows in a way that is sustainable in terms of the air we breathe.

Developing and implementing technical planning guidance, can help to:

- Provide a clear and consistent process for developers, planners, local communities and their representatives.

- Formalise an air quality assessment process that includes the quantification of impacts, determining damage costs and identifying mitigation measures to be implemented to negate any negative impacts;
- Address cumulative impacts from small and medium scale developments that might otherwise be left unmitigated;

The East Midlands Air Quality Network (EMAQN), a group of environmental health, public health and transport professionals in the East Midlands, has produced technical air quality and planning guidance to supplement the National Planning Policy Framework, which seeks to address the above points in a consistent way across the east midlands region.

• ***Measure No.3 - Review of Taxi/Private Hire Licencing Policy to include Emission Controls***

Taxis and private hire vehicles are likely to pass through the city's AQMA during many of their trips around the city centre. As such, they have the potential to have a notable impact on air quality within the AQMA, dependent on the type and age of vehicle.

The Council's taxi/private hire vehicle licensing policy is currently due to be reviewed and, therefore, there is an opportunity to use a revised policy to drive improvements in the taxi/private hire fleet emissions. For example, this could include the introduction of vehicle age limits or the requirement for certain Euro Standards for licenced vehicles.

The Low Carbon Vehicle Partnership and Energy Saving Trust have produced '[The Low Emission Taxi Guide](#)' which provides advice for local authorities on how to implement low emission schemes for taxi and private hire vehicles. The guide includes case studies from local authorities that have already sought to address this emission source, including one within the East Midlands area. This document will be used to inform the licensing review in terms of reducing fleet emissions of nitrogen dioxide.

- ***Measure No.4 - Eco-recognition scheme for taxi/private hire vehicles***

To go hand in hand with any improvements sought through a revised taxi/private hire licensing policy, there is scope to introduce a recognition scheme for low /ultra-low emission vehicles. For example, certificates or signs could be provided for display in or on qualifying vehicles, or on company websites, so that customers are aware that they are using a low emission vehicle and are helping to reduce their journey's air quality impact within the city.

- ***Measure No. 5 - Review and implement CoLC Travel Plan***

Many of the trips made in connection with the Council's services, including staff coming to and from their place of work, will involve travel through the city's AQMA.

To ensure that there is an opportunity for these trips to be made in a sustainable way that reduces the impact on the environment, the Council will produce and implement an up to date travel plan. A review of staffs' travel choices has already commenced using an online survey to establish base line data, which will subsequently inform the review of the travel plan. An important component of any successful travel plan is the inclusion of performance indicators to assess the success or otherwise of the adopted travel plan measures. Once these targets are adopted, they will be incorporated into the Air Quality Action Plan.

- ***Measure No. 6 - Develop and implement an air quality guide to supplement CoLC's Social Value Procurement Policy***

The Council's Social Value Procurement Policy highlights the impact that the procurement process can have on mitigating the effects on the environment, for example by considering the need to reduce traffic emissions and the environmental performance of suppliers.

It is, therefore, proposed to produce a technical guidance document to supplement the Social Value Procurement Policy that can be used by officers procuring relevant

services, contracts, equipment etc. to enable them to assess air quality impacts in a consistent, transparent and proportionate way.

- ***Measure No.7 - Boiler Replacement Program***

Although the principal source of NO₂ within the AQMA is road traffic related, efforts to reduce background contributions will also have a beneficial impact. One significant background source is domestic heating. The City Council currently has in excess of 7600 housing stock requiring heating. Upgrading each of these boilers to low NO_x boilers will, therefore, have a positive effect in reducing background NO₂ levels.

The City Council is implementing a boiler upgrade program, which is subject to committed ring-fenced funding. To present, around 5600 upgrades have been completed, with a further 400 replacements planned for 2019/20.

- ***Measure No.8 – Electric Vehicle Re-charging Strategy***

One of the principal challenges for the uptake of electric vehicles, particularly for residents who do not have access to their own dedicated off-street parking, is the ready accessibility of vehicle recharge points.

The City Council, therefore, proposes to develop a strategy during 2019 that will seek to explore the options for providing electric vehicle recharge infrastructure within the city, with the aim of enabling ready access to recharge points for a growing number of electric vehicles.

- ***Measure No.9 – Promotion of personalised and work place travel plans***

Many of the trips made by those working, living and visiting the city, will necessitate travel through the city's AQMA.

The use of personalised and workplace travel plans can help people make these journeys in a sustainable way that reduces air quality impacts, promotes active travel and reduces exposure to pollution. Access Lincoln and Lincoln BIG have commenced work on promoting personalised and work based travel planning using a combination of online tools (<https://accesslincoln.co.uk/travel-planning/>) and direct interactions.

6 Next Steps

The City Council and its partners will aim to progress each of the measures within the timeframes set out in Table 5 above and will report progress on each of the measures back to the Council's Low Carbon Task Force (the steering group). Progress on implementation will also be reported annually to the Council's Policy Scrutiny Committee, as well as being published in the Council's local air quality annual status reports.

As stated above, a full review of the Air Quality Action Plan will be undertaken following completion of the Lincoln Transport Strategy review, towards the end of 2019. This full review of the AQAP will consider all the potential options presented by the revised LTS.

Appendix A: Response to Consultation

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

| Consultee | Category | Response |
|---------------------------------|------------------------------|--|
| Lincolnshire County Council | Highways Authority | <p>No objections to the interim action plan and made the following observations:</p> <ul style="list-style-type: none"> • This Authority would fully support the measures proposed where they relate to transport issues. The Lincoln Eastern Bypass is currently under construction and due for completion in May 2020. The work undertaken last year by yourselves as part of the Detailed Modelling Assessment highlights the beneficial affect that this scheme is expected to have on air quality within the city centre. • A full review of the Lincoln Transport Strategy is currently underway with a view to adopting an updated strategy later this year. Whilst the precise detail of the strategy have yet to be developed, it is highly likely that many of the measures proposed will have a beneficial impact on air quality, for example, by encouraging the use of more sustainable modes of travel or perhaps more direct traffic management measures to reduce traffic flows or speeds. • Your authority has already been heavily involved in the ongoing development of the new Lincoln Transport Strategy and this engagement will no doubt continue over the coming months as the details of the proposed measures and initiatives emerge. As you rightly point out, once the Strategy has been finalised, it would then seem the appropriate point at which to carry out a full review of the Air Quality Action Plan so that this can be more properly reflected. |
| North Kesteven District Council | Neighbouring local authority | Agree with the proposed measures and no adverse observations. |

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| <p>Environment Agency</p> | <p>Public body and environmental regulator</p> | <p>No objections to the interim action plan but included the following observations:</p> <ul style="list-style-type: none"> • It is important to note that we are not aware of any waste facilities or other industrial installations regulated by the Environment Agency in the City of Lincoln that are causing or contributing to failures of air quality standards. • Air quality policies must work in partnership with transport policies but also the authorities' own fleet procurement policies. • Any new development, particularly in air quality hotspots, will need to consider how they mitigates the impacts of poor air quality, both during the construction and operational phases of the development. • Major developments planned within the authority will need to significantly mitigate their emissions and thus contribute towards improving local air quality. This is particularly the case where they include potentially new sources of emissions such as biomass boilers, combined heat and power plants, and increased traffic-generated emissions. • Construction and demolition works should be required to meet or exceed the requirements set out in the Institute of Air Quality Management's Guidance on the Assessment of Dust from Demolition and Construction. • It is recognised that the City of Lincoln will need to work with others on the implementation of the measures necessary to address poor air quality as the matter is not confined to one planning authority area, and development is often governed by separate regulatory regimes and legislation, such as building regulations and environmental permitting. We are pleased to note that the City of Lincoln regularly participates in the East Midlands Air Quality Network with representatives from other local districts and boroughs. |
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Appendix B: Progress on Measures to Improve Air Quality (as reported in CoLC's 2018 Annual Status Report)

| No. | Measure | Focus | Lead Authority | Planning Phase | Implementation Phase | Indicator | Target Annual Emission Reduction in the AQMA | Progress to Date | Progress in Last 12 Months | Estimated Completion Date | Comments Relating to Emission Reductions |
|-----|--|------------------------|-----------------------------|----------------|----------------------|--|--|---|---------------------------------------|---------------------------|---|
| 1 | Road Network and Traffic Management Improvements | Lincoln Eastern Bypass | Lincolnshire County Council | 2011-2015 | 2016-19 | Change in AADT, including split for HDV/LDV on Broadgate | To be agreed | Planning permission granted; DfT funding contribution secured. Initial Public Inquiry held Feb 2015 with amended orders advertised late 2014. Further inquiry held August 2015 with Orders confirmed February 2016. | Construction commenced December 2016. | Winter 2019 | Scheme will remove traffic from the A15 Broadgate/Canwick Road corridor with consequential improvements to air quality in declared AQMA |
| 2 | Road Network and Traffic Management Improvements | East-West Link | Lincolnshire County Council | 2010-2014 | 2014-2106 | To be agreed | Not known | Planning consent received in October 2012. Construction of Phase 1 (High Street to Canwick Road) commenced December 2014. | Scheme opened to traffic August 2016 | Complete | The principal aim of this development is to address congestion caused by two rail crossings in the city centre |

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| 3 | Road Network and Traffic Management Improvements | North Hykeham Relief Road (formerly Lincoln Southern Bypass) | Lincolnshire County Council | 2006 | Not known | To be agreed | Not known | Preferred route declared for protection in December 2006. | Transport model updated. Outline Business Case in preparation for possible future funding bid when opportunity arises | Not known | |
| 4 | Road Network and Traffic Management Improvements | Traffic flow Management | Lincolnshire County Council | 2007-2013 | 2008-2015 | Change in vehicle queuing times | Not known | Broadgate/Silver Street/Clasketgate completed November 2008; Newark Road/Rookery Lane/Brant Road completed December 2013; Canwick Road/South Park completed July 2015. Further feasibility work undertaken in preparation for possible future funding bids. | Junction Improvement at Wragby Road/Outer Circle Drive/Wolsey Way currently under construction | Ongoing | |
| 5 | Road Network and Traffic Management Improvements | Cycling Infrastructure | Lincolnshire County Council | Ongoing | Ongoing | length of new cycleway | Not known | Network continues to be developed as funding allows | 150m of cycleway linking Transport Hub and Cycle Hub at Lincoln Rail Station | Ongoing | |

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| 6 | Sustainable Transport Initiatives | Quality Bus Corridors | Lincolnshire County Council | 2008 | 2011 | % of buses on time | Not known | High Street Corridor completed December 2011 | Further corridors will be considered after the opening of the Eastern Bypass | Dependent on implementation of Eastern Bypass | |
| 7 | Sustainable Transport Initiatives | Real-time Bus Passenger Information | Lincolnshire County Council | 2006-2010 | 2008-2010 | % of stops or routes with real-time info | Not known | Real time information is now available for all services provided by the three main operators within Lincoln | Real time feed now provided direct to Traveline. Information also displayed at new Transport Hub and available via commercial and operator-owned Apps. | Ongoing | |
| 8 | Sustainable Transport Initiatives | Bus Priority Measures at Traffic Signals | Lincolnshire County Council | 2013 | Ongoing | No. of signals with bus priority | Not known | A total of 8 signalised junctions across the City now incorporate bus priority technology. | A further 6 junction are due to be added to the system during 2018, included those on the new East-West Link | Ongoing | |

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| 9 | Sustainable Transport Initiatives | New Public Transport Interchange | City of Lincoln Council | 2014 | Sep-15 | To be agreed | To be agreed | Indicative funding approved and planning approval obtained. Planning application submitted and consent granted 16th June 2016. | Work Commenced September 2016. Transport Hub opened | Jan-18 | |
| 10 | Sustainable Transport Initiatives | Park and Ride | Lincolnshire County Council | Ongoing | Not known | Passengers carried | To be agreed | Some feasibility work completed. Funding issues still to be resolved. Smalls-scale Park and Ride commenced in Feb 2017 operated in partnership with Lincoln BIG, Waitrose and Stagecoach | Waitrose Park and Ride site used by 32,000 passengers during first 12 months of operation. | Ongoing | |
| 11 | Sustainable Transport Initiatives | Alternative Fuel Buses | Lincolnshire County Council | 2012 | 2013-2014 | No. of alternative fuel buses | To be agreed | Trial of biogas buses ended due to problems sourcing fuel. | - | Completed | |
| 12 | Sustainable Transport Initiatives | Linc Share - Car Share website | Lincolnshire County Council | 2009 | Ongoing | No. of people signed up to site | Not known | 1354 Lincshare members as of June 2017 | Local LincShare local site now subsumed into national LiftShare site. | Ongoing | |
| 13 | Sustainable Transport Initiatives | Access LN6 - Car Share website | Lincolnshire County Council | 2012 | 2013 | No. of people signed up to site | Not known | Merged with Lincshare in 2015. | See above | Completed | |

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| 14 | Sustainable Transport Initiatives | Access LN6 - Lincoln HireBike | Lincolnshire County Council | 2012 | 2013-2020 | No. of rentals and No. of registrants | Not known | Total of 26 bike stations in place. | Further 8 new/upgraded cycle stations provided. Electric bikes now available at some cycle stations. | 2020 | |
| 15 | Sustainable Transport Initiatives | Access LN6 - Personalised Travel Planning | Lincolnshire County Council | 2013 | 2014 | No. of single occupancy car journeys before/after PTP | Not known | Daily car use as single occupancy driver decreased from 20% to 15% | - | Completed | |
| 16 | Sustainable Transport Initiatives | Business Travel Plans | Lincolnshire County Council | Ongoing | Ongoing | No of businesses with adopted travel plans | Not known | A new online website was launched for businesses and organisations to develop travel plans themselves. This is being signposted by planning if conditioned | A new online website was launched for businesses and organisations to develop travel plans themselves. This is being signposted by planning if conditioned | Ongoing | |
| 17 | Sustainable Transport Initiatives | School Travel Plans | Lincolnshire County Council | 2005 | 2012 | No. of schools with approved travel plans | Not known | All 363 local authority schools have an adopted travel plan. An updated travel plan is required as part of the planning process for school improvements. | Work ongoing with Education Department on Sustainable Modes of Travel to School (SMOTS) strategy. | Ongoing | |

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| 18 | Sustainable Transport Initiatives | Access LN6 - New bus services | Lincolnshire County Council | 2012 | 2012-2015 | Passengers carried | Not known | 7.5% increase on Stagecoach 44/44a/66 and 12.4% increase on Stagecoach 29 (Jan-May 2011-2014) and 72.1% increase on PC Coaches 48/49 (Apr-Sep 2012-2014) | - | Completed | |
| 19 | Sustainable Transport Initiatives | Access LN6 - Hykeham Station improvements | Lincolnshire County Council | 2013 | 2014 | Passengers carried and frequency of trains | Not known | Improvement of facilities leading to patronage increase from 23,262 in 2009/10 to 71,056 in 2015/16. Number of weekly trains increased from 162 in Dec 2014 to 247 in Dec 2016 | Car park extended through S106 agreement for adjacent residential development. | Completed | |
| 20 | Sustainable Transport Initiatives | Access LN6 - Sustainable Travel Grant for businesses | Lincolnshire County Council | 2012 | 2013-2015 | Amount of funding provided | Not known | 35 businesses received £97,586.06 | - | Completed | |

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|----|-----------------------------------|--|-----------------------------|------|-----------|--------------------------------------|-----------|---|---|-----------|---|
| 21 | Sustainable Transport Initiatives | Access LN6 - Cycle storage implementation | Lincolnshire County Council | 2012 | 2013-2015 | No. of cycle parking spaces provided | Not known | 718 cycle parking spaces provided since 2012. 0 - £500k of funding has been awarded from DfT for the 'Access Lincoln' project, establishing more cycle parking spaces is an element within this | Grant funding provided for St Marks Retail Park to install secure cycle storage for 90 bikes. Partnership work with East Midlands Trains to install secure storage for 100 bikes at Lincoln Rail station | Completed | |
| 22 | Sustainable Transport Initiatives | Promotion of sustainable transport to work for City of Lincoln Staff | City of Lincoln Council | 2010 | Ongoing | Change in travel to work behaviour | Not known | Since 2010: Car sharing up by 15%; walking up by 5%; Cycling up 5%; Train increased by 1.5%; bus increase by 3% | | Ongoing | CoLC will review and update the travel plan in 2018 |
| 23 | Sustainable Transport Initiatives | Introduction of electric vehicles into City of Lincoln Council Fleet | City of Lincoln Council | 2011 | 2013 | No of electric vehicles in fleet | Not known | One electric vehicle introduced in 2013 | | | |

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|----|-----------------------------------|---|-------------------------|------|---------|--|-----------|--|---|---|----------------------------|
| 24 | Sustainable Transport Initiatives | Smarter trip planning for CoLC fleet | City of Lincoln Council | 2010 | Ongoing | % reduction in CO ₂ e emissions from CoLC fleet | Not known | Since 2010: there has been 38.4% decrease in CO ₂ e emissions (This has reduced from 29% to 38.4% in the last twelve months.) | The council's fleet vehicles have been replaced by more fuel efficient vehicles but have opted not to invest in electric vehicles at this time. | Ongoing | |
| 25 | Sustainable Transport Initiatives | Provision of electric vehicle recharge points in CoLC car parks | City of Lincoln Council | 2010 | 2012-13 | No. of recharge points available in CoLC car parks. | Not known | Total of 18 recharge points installed.with infrastructure in place to add a further 20 EVR points once demand is sufficient. | The new multi-storey car park includes 12 new EVR points with infrastructure in place to add a further 20 EVR points once demand is sufficient. A further two recharge points have been installed at The Lawn car park. | Further points may be considered depending on funding streams | |
| 26 | Sustainable Transport Initiatives | Provision of electric vehicle recharge point for CoLC fleet use | City of Lincoln Council | 2012 | 2013 | No. of recharge points available for CoLC fleet | Not known | Funding secured through Defra AQ grant 2012/13 and recharge point installed 2013 | None | Completed | Data is being collected on |

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| 32 | Reducing emissions from CoLC buildings | Energy efficiency measures to reduce natural gas consumption | City of Lincoln Council | 2009 | Ongoing | Gas consumption | Not known | CoLC gas consumption reduced by 31% since 2009 (This has reduced from 29% to 38.4% in the previous twelve months.) | CoL | Ongoing | |
| 28 | Sustainable Transport Initiatives | Promotion of car sharing to public | City of Lincoln Council | 2007 | 2009 | None | Not known | Defra AQ grant secured in 2008/09, signs installed 2009. | None | Completed | |
| 29 | Minimising the burden of new development | Develop Air Quality and Development Guide | City of Lincoln Council | 2014 | 2015 | To be agreed | To be agreed | Draft document produced October 2014 and circulated for internal consultation. | East Midlands Air Quality Network have issued developer's guide for consultation which is currently being considered for adoption by CoLC. | Ongoing | |
| 30 | Minimising the burden of new development | Requirement for proportionate air quality mitigation for all new relevant development | City of Lincoln Council | 2014 | Ongoing | To be agreed | To be agreed | Recommendation for provision of electric vehicle recharge points at all relevant development since October 2014, along with requirement to provide Construction Management Plan | Ongoing | Ongoing | |

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|----|--|--|-------------------------|------|---------|-----------------|-----------|--|---------------------------|---------|--|
| 31 | Air Quality Awareness Raising | Provision of publicly accessible air quality information | City of Lincoln Council | 2007 | Ongoing | None | Not known | Local air quality reports and information available through CoLC website | Relevant web page updated | Ongoing | |
| 32 | Reducing emissions from CoLC buildings | Energy efficiency measures to reduce natural gas consumption | City of Lincoln Council | 2009 | Ongoing | Gas consumption | Not known | CoLC gas consumption reduced by 31% since 2009 (This has reduced from 29% to 38.4% in the previous twelve months.) | No update available. | Ongoing | |

Glossary of Terms

| Abbreviation | Description |
|-------------------|---|
| AQAP | Air Quality Action Plan - A detailed description of measures, outcomes, achievement dates and implementation methods, showing how the local authority intends to achieve air quality limit values' |
| AQMA | Air Quality Management Area – An area where air pollutant concentrations exceed / are likely to exceed the relevant air quality objectives. AQMAs are declared for specific pollutants and objectives |
| AQS | Air Quality Strategy |
| ASR | Annual Status Report |
| Defra | Department for Environment, Food and Rural Affairs |
| EU | European Union |
| LAQM | Local Air Quality Management |
| NO ₂ | Nitrogen Dioxide |
| NO _x | Nitrogen Oxides |
| PM ₁₀ | Airborne particulate matter with an aerodynamic diameter of 10µm (micrometres or microns) or less |
| PM _{2.5} | Airborne particulate matter with an aerodynamic diameter of 2.5µm or less |