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## Executive summary

### Air pollution issues and challenges

E1. Two of the greatest challenges currently faced by York are:

- the need to reduce emissions of greenhouse gases, particularly carbon dioxide (CO<sub>2</sub>)
- the need to protect residents from the harmful effects of local air pollutants, particularly nitrogen dioxide (NO<sub>2</sub>) and particulate matter (PM).

Both these problems have common sources.

E2. Uncontrolled, climate change is predicted to have serious local implications for York's communities, economy and its built and natural environments. Such changes may lead to increased local flooding, structural damage to buildings and loss of wildlife. It may also place additional pressure on local emergency services, transport networks and the economy<sup>1</sup>. Wider indirect implications on population, food supplies etc may be even more serious.

E3. Like other local authorities York has an obligation to meet the Climate Change Act (2008) targets, but has also gone beyond this requirement, setting a number of other challenging climate change reduction targets. These include:

- Reducing CO<sub>2</sub> emissions across CYC operations by 25% by 2013
- Participation in the national 10:10 campaign to reduce CO<sub>2</sub> emissions by 10% in 2010
- Signatory to the Friends of the Earth campaign to reduce CO<sub>2</sub> emissions by 40% by 2020
- Signatory to the European Covenant of Mayors to meet and exceed the European Union (EU) 20% CO<sub>2</sub> reduction objective by 2020

York has produced and adopted a Climate Change Framework and Action Plan (CCFAP), setting out how it intends to move towards meeting these challenging targets.

E.4 Local air quality also remains a high priority. The main air pollutants of concern in York are NO and PM. These have been linked to lung diseases (asthma, bronchitis and emphysema), heart conditions and cancer. Based on national estimates, pro rata between 94 and 163 people die prematurely in York each year due to the impacts of poor air quality. This is more than the estimated combined impact of

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<sup>1</sup> A Climate Change Framework and Action Plan for York (2010-2015)

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obesity and road accidents together. Poor air quality puts the health of York's residents at risk, creates an unpleasant environment for visitors, may damage historic buildings and places an additional financial burden on local health service providers.

- E.5 Concentrations of NO<sub>2</sub> within the city centre Air Quality Management Area (AQMA) have continued to increase year on year since 2006, despite the introduction of two Air Quality Action Plans (AQAPs) and award winning Local Transport Plans. The health based annual average NO<sub>2</sub> objective continues to be exceeded at many locations around the inner ring road and more recently further air quality issues have been identified in suburban locations. A second AQMA was declared in Fulford in April 2010 and another will follow on Salisbury Terrace by summer 2012. It is also likely that extensions to the existing city centre AQMA will be needed later this year to cover exceedances of the annual average objective on Queen Street and the short term hourly objective on Rougier Street. It is only in recent years that evidence of breaches of the short term hourly objective for NO<sub>2</sub> has been found in the city despite long term monitoring. This is a clear indication that air quality is continuing to decline in the city.
- E.6 Improving local air quality and reducing CO<sub>2</sub> emissions are essential to the future well being of the city and its residents, but this has to be balanced against opportunities for economic growth, new development and the ability of residents and visitors to travel freely around the city. York's population is predicted to expand by 25% by 2029<sup>2</sup>, resulting in greater heating and energy demands and a doubling in traffic levels by 2021 (based on 2011 baseline)<sup>2</sup>. Additional emissions to air will arise from the increased number of vehicles but also as a result of the additional congestion and delay created on the road network. There is predicted to be a disproportionately high impact on congestion compared with traffic growth. Carbon modelling studies undertaken in York have indicated that CO<sub>2</sub> emissions will have risen by around 31% by 2050<sup>3</sup>. Some of these additional emissions will be offset by energy efficiency and renewable energy use, but without intervention transport, business, commercial and domestic emissions to air are all likely to increase in the future.
- E.7 Not all CO<sub>2</sub> reduction measures deliver a corresponding improvement in local air quality. For example, biomass burners offer an attractive opportunity to produce low carbon heat and power, particularly from new developments, but biomass burners can emit greater quantities of NO<sub>2</sub> and PM at a local level than natural gas equivalents. There are also additional local, and often global, emissions associated with transportation of the fuel. Biomass burners can therefore pose an additional threat to local air quality within an already polluted urban environment.<sup>4</sup>

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<sup>2</sup> City of York Council LDF Core Strategy Submission Draft – April 2011

<sup>3</sup> Increase based on 2005 baseline emissions, Department for Energy and Climate Change (DECC) CO<sub>2</sub> emission estimates for 2005-2008, [www.decc.gov.uk](http://www.decc.gov.uk)

<sup>4</sup> Biomass and Air Quality Guidance for Local Authorities, LACORS, June 2009

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- E.8 Reducing vehicle emissions in York is arguably the most difficult emission reduction challenge. York is one of five local authorities in the Yorkshire and Humber Region that experience a net inward flow of trips to work (22,500 commute trips in, 17,200 commute trips out). The ten-year period 1991 – 2001 saw a rise in commuting trips of approximately 65%. This is a trend which is set to continue<sup>2</sup>.

The exact reasons for the continued decline in local air quality in York are not certain, but are thought to include:

- i. An increased proportion of primary NO<sub>2</sub> emissions from modern diesel fuelled vehicles. This is due to the emission controls added to these vehicles to reduce other pollutants such as PM and carbon monoxide (CO).
- ii. An overall increase in the number of diesel cars in the fleet, combined with a corresponding increase in vehicle size, weight and engine size
- iii. Inefficient driving techniques and inefficient operation of vehicle emission controls within the urban environment
- iv. Increasing congestion and delay on the road network which increases fuel consumption and limits the effectiveness of emission control technology
- v. An increase in the use of bio-fuels in vehicles and boiler plant
- vi. The cumulative impact of small scale development
- vii. An increase in the availability of relatively cheap city centre car parking which makes the use of service buses and Park & Ride financially less attractive

**Current approach to emission reduction****Local air pollution**

- E.9 In York measures to reduce concentrations of local air pollutants are focused primarily on traffic as this is the main source. Historically the approach has been to 'shift' trips to more sustainable transport modes, such as walking, cycling and public transport and to ensure the network moves as smoothly as possible through wider traffic management measures. This has been achieved through Local Transport Plans (LTP1 and LTP2) and two Air Quality Action Plans (AQAP1 and AQAP2). There have been some notable successes, including an increase in bus patronage of over 5 million passengers (+ 54%) between 2001 and 2006 (increase in patronage remaining stable despite falling patronage elsewhere in the country)<sup>5</sup>, peak period traffic levels have been stable since 2006 and cycling levels have increased to 16%

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<sup>5</sup> City of York Council Local Transport Plan 2 Mid-term report – Dec 2008

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from an average of 10% since 2008 (during the lifetime of the Cycling City York Programme).

- E.10 As well as transport planning based measures, emissions of local air pollutants are also controlled through the planning system. Larger developments are subject to air quality impact assessments and in some cases developers are required to implement air quality mitigation measures. At present mitigation measures usually relate to changes to the design or layout of a building (to prevent further human exposure to existing poor air quality) and/or the provision of cycling and public transport infrastructure / incentives. Recently some success has been achieved in requiring developers to provide incentives for the uptake of low emission vehicles on their developments. For example, the provision of an electric vehicle recharging point was recently negotiated at the Waitrose store. More general planning principles relating to the need to provide mixed use developments and sustainable building design also assist in minimising emissions of local air pollutants.
- E.11 Whilst the LTP, AQAP and planning measures are currently the main delivery mechanisms for controlling and reducing emissions of local air pollutants, other policies and programmes also have a role to play. Emissions from some industrial processes are controlled locally in line with the requirements of the Integrated Pollution Prevention and Control Directive 96/61/EC (as amended). Enforcement of the PPC regulations is a shared responsibility between the Environment Agency and the local authority depending on the size of the installation. As this is a national based system there is little scope to achieve any further reduction in industrial process emissions in York without placing local industries at a disadvantage to those in other areas. Further measures to reduce industrial emissions therefore fall outside the scope of this LES but enforcement of the existing regulations should be considered an essential part of the overall emission reduction strategy in York.
- E.12 Another important measure undertaken by CYC to protect local air quality is the enforcement of Smoke Control Areas (SCAs). SCAs were introduced mainly in the 1950s /1960s under the provisions of the Clean Air Acts to control emissions from the burning of solid fuels in homes and industry. They were introduced in direct response to the fatal 'peasouper' smogs of the 1950s and continue to be in operation today. With increasing costs of gas and electricity solid fuel appliances are once again becoming increasingly popular. Whilst there are currently no plans to increase the size of the areas covered by SCAs in York it is essential that the requirements of existing SCAs continue to be enforced to ensure that the new generation of solid fuel appliances are fitted and operated in a way that will not give rise to widespread smoke emissions.

**Climate Change**

- E.13 Measures to reduce emissions of CO<sub>2</sub> and prevent climate change are set out in the Climate Change Framework and Action Plan (CCFAP) for York, produced by CYC

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and the local strategic partnership - Without Walls (WoW). The framework identifies ten key areas for focus, creating:

- Sustainable homes
- Sustainable buildings
- Sustainable energy
- Sustainable waste management
- Sustainable transport
- Sustainable low carbon economy
- Low carbon lifestyle
- Sustainable planning and land use
- Sustainable strategic partnership (WoW) – illustrating the climate change work they are doing as a partnership
- Prepared York – how we start to prepare and adapt our infrastructure, services, homes and businesses for a changing climate.

E.14 The CCFAP is broken down into:

- **mitigation** – actions that will reduce greenhouse gas emissions from across York
- **adaptation** – actions that will help York to better prepare and adapt to the predicted effects of a future changing climate.

The framework and action plans aim to help everyone in York to live and work in a more sustainable, low-carbon city where people:

- live and work in energy-efficient buildings with smaller fuel bills
- can drive less and walk and cycle more
- use renewable sources of energy to heat buildings or power cars and buses
- create less waste, recycle and compost more.

E.15 Delivery of the CCFAP is already well advance with a comprehensive programme of energy efficiency and renewable energy schemes already being delivered across the city. Significant reductions in CO<sub>2</sub> emissions from council owned housing, offices, schools and street lighting have already been achieved and many more measures are planned. Further reductions in CO<sub>2</sub> emissions from the housing sector are being sort through the Private Sector Housing Strategy (PSHS) which aims to maintain and where possible improve the energy efficiency of York's private housing stock (including private rented homes)<sup>6</sup>. In most cases the CO<sub>2</sub> reduction measures being implemented through the CCFAP and the PSHS also deliver reductions in emissions

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<sup>6</sup> York Private Sector Housing Strategy, 2008-2013

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of local air pollutants. The notable exception to this is the use of biomass boilers where the impact on local air quality may occasionally out weight the CO<sub>2</sub> benefit, or vice versa.

**A Low Emission Strategy – a new approach**

E.16 In recent years LESs have been championed as a new approach to reducing both local and global air pollutants from development.

In their simplest form LESs,

*'provide a package of measures to help mitigate the transport impacts of development. Their primary aim is to accelerate the uptake of low emission fuels and technologies in and around development sites.'*<sup>7</sup>

This overarching LES for York takes the LES concept a step further. It moves outside the boundaries of new development demonstrating how LES principles can be applied to a wider range of activities such as marketing, land use planning, fleet management, procurement, transport planning and economic development. Applying the concepts of a LES to a wider range of activities presents further opportunities for emission reduction (particularly in relation to traffic emissions) and provides a more strategic overview of all emission reduction measures currently taking place in the city.

**What do we want the LES for York to achieve?**

E.17 The long term vision for York's overarching LES is

**'To transform York into a nationally acclaimed low emission city'**

- where the population, and the business and development community particularly, are aware of their impact on the environment and health and play an active role in reducing all emissions in the city
- where new development is designed to minimise emissions and maximise sustainable transport access
- where there are noticeably higher rates of walking and cycling than in other UK cities and comparable to European best practice
- where there are noticeably greater numbers of alternatively fuelled vehicles (electric, gas and hybrid) than in other UK cities and widespread eco-driving behaviour

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<sup>7</sup> Low Emissions Strategies using the planning system to reduce transport emissions, DEFRA / LESP, January 2010

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- where there is a well developed infrastructure to support low emission (alternatively fuelled) vehicles
- where the number of vehicles accessing air quality hotspots and risk areas are minimised and where lorries, buses and taxis meet minimum emission standards and embrace new emission reduction technologies
- where the council leads by example, operating the lowest emission fleet affordable and seeking to minimise emissions from procured services
- where local air quality and global warming issues are considered and tackled together
- where inward investment by low emission technology providers is actively sought, encouraged and supported
- where innovation and investment in infrastructure and services that reduce emissions are actively sought, encouraged and promoted.
- where as a result of the above there are no exceedances of air quality limits

**How will this be done?**

- E.18 The LES vision will be delivered through a series of measures aimed at achieving the following objectives:
- i. To raise public and business awareness and understanding of emissions to air in order to protect public health and meet the city's ambitious carbon reduction targets.
  - ii. To minimise emissions to air from new developments by encouraging highly sustainable design (via sustainable design aspects of the emerging LDF and associated supplementary planning documents) and the uptake of low emission vehicles and fuels on new developments (via LES)
  - iii. To minimise emissions to air from existing vehicles by encouraging eco-driving, optimising vehicle maintenance and performance (including that of abatement equipment) and providing businesses, residents and visitors with incentives and opportunities to use low emission vehicles and fuels
  - iv. To lead by example by minimising emissions from council buildings (via CCFAP), fleet and other activities and to showcase low emission technologies whenever possible
  - v. To encourage inward investment by providers of low emission technology, fuels and support services
  - vi. To maximise sustainable transport and reduce localised air quality breaches through traffic demand management, smart travel planning, and potentially regulatory control (via LTP3, LES and revisions to the AQAP).

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Each of the measures to deliver the LES objectives are based on one or more of the following LES principles:

**Inform** people as to how and why they should reduce their emissions to air

**Reduce** as far as possible the energy demand that gives rise to emissions to air

**Improve** the emission characteristics of the technology used to deliver the remaining energy demand

E.19 Some of the headline measures include:

- Promoting and incentivising the use of low emission vehicles, particularly those which run on electric, compressed natural gas (CNG), bio-methane and /or make use of hybrid technologies
- Increasing access to low emission vehicle re-fuelling infrastructure, such as electric vehicle re-charging points and gas re-fuelling systems
- Ensuring only low emission lorries, buses and taxis can access the areas of the city with the poorest air quality
- Providing recognition and support for those vehicle operators who are leading the way in adopting low emission technologies and adopting industry best practices (e.g. eco-driving)
- Ensuring emissions from new development are adequately mitigated against, whilst continuing to encourage economic growth and prosperity
- Promoting York as a centre of excellence for low emission technologies, attracting new businesses and industries and increasing opportunities for specialist 'green sector' training

**Links to other plans and strategies**

E. 20 The LES will build upon the success of the existing emission reduction measures for CO<sub>2</sub> and local air pollutants already being delivered in the city but will not replace them. The CCFAP and PSHS will continue to be the main delivery mechanisms for measures to reduce CO<sub>2</sub> emissions from existing housing stock and other buildings in York. In most cases this will also deliver some associated improvements in local air quality. Where this might not be the case, for example in the case of using biomass fuels, steps will be taken to ensure that in the future full consideration is given to both CO<sub>2</sub> and local air quality issues before decisions are taken. Any additional measures to reduce emissions from buildings will be brought forward via the CCFAP and have been deliberately excluded from inclusion in this LES.



- E.21 For new buildings coming forward as part of the development process, emissions from the heating and power requirements will continue to be controlled mainly through the CCFAP and associated sustainable development planning policies whilst emissions arising from development based traffic will be addressed mainly through the LES and revised AQAP3. Again where there is potential for conflict between CO<sub>2</sub> and local air quality steps will be taken to ensure both are given adequate consideration prior to decisions being taken.
- E.22 The LES will enhance the existing provision for reducing emissions from the general vehicle fleet currently provided by the LTP and AQAP2. The LES will place a greater emphasis on the need to reduce the total number of vehicle trips and ensure that the remaining trips are undertaken by the lowest emission vehicles possible. During 2013 the additional traffic emission reduction measures presented in this LES will be incorporated into a fully revised and updated AQAP3. This will bring together all the current and planned measures to reduce emissions from traffic in the city and set emission reduction targets where possible. As the LTP is the main delivery document for the AQAP it remains an important aspect of the overall approach to emission reduction in the city.
- E.23 The relationship between the LES and other existing plans and strategies is examined further at [section 3.14](#).

### Document Layout

- E.24 This document comprises six parts:

#### **1. Drivers for emission reduction**

This section provides a brief overview of the policies, legislation and emerging scientific evidence that has driven the development of the overarching LES in York.

#### **2. Air quality and carbon emissions in York**

This section presents a background to air quality monitoring in York highlighting the initial improvement, but then subsequent deterioration in local air quality in the city over the past 8 years. It also considers sources and trends of CO<sub>2</sub> emissions in York. The data presented forms the main evidence base for the development of the York LES.

#### **3. Current approach to emission reduction in York**

This section examines the main measures currently in place to control and reduce emissions of local air pollutants and greenhouse gases in York and introduces the concept of a LES.

#### 4. A LES for York

This is the main body of the report. It sets out the vision and objectives for the York LES and presents the main measures to be taken to further reduce emissions to air in York.

#### 5. Baseline data requirements

This section outlines the baseline data that will be required to monitor the performance of the LES, and to set emission reduction targets in AQAP3.

#### 6. Annex1: Low emission vehicles and fuel technologies

This annex provided an overview of the current availability and use of various low emission vehicles and fuel technologies. It is provided as an informative to the main strategy.

#### How can you get involved?

- E.25 The production of this document is just the first step in delivering an overarching LES for York. It will be followed by a more detailed air quality action plan (AQAP3), stating exactly how, when and where the low emission measures outlined in this document will be delivered.

**You can help influence the development of the LES and the subsequent AQAP 3 by:**

- 1. Completing the questionnaire relating to the concept of the overarching LES as set down in this document by 18<sup>th</sup> May 2012**
- 2. Getting involved with the development of AQAP3.**

You can access the questionnaire relating to the concept of the LES and/ or register your interest in the development of AQAP 3 at <http://www.york.gov.uk/consultation/> or by sending an e-mail to [environmental.protection@york.gov.uk](mailto:environmental.protection@york.gov.uk) or by telephoning (01904) 551555.

- E.26 The success of the LES will depend highly on raising the profile of low emission fuels and technologies in the city and increasing access to them. To assist with this in the coming months we will be actively seeking a number of 'trailblazers' for the York LES. These will be organisations and / or individuals who are already using low emission fuels and technologies in their everyday lives, or who would be willing to consider investing in them.

Examples of the types of organisations and individuals we are looking for include:

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- Transport operator's willing to trial new types of buses and HGVs eg. hybrid technologies, bio-methane
- Taxi drivers using low emission vehicles eg. gas/hybrid, electric hybrid, LPG/CNG
- Businesses who provide low emission vehicles for use by staff / customers or provide access to low emission re-charging / re-fuelling infrastructure
- Developers looking to provide exemplar low emission developments
- Individuals who have invested in low emission technology and would be willing to share their experiences

Getting involved as a 'trailblazer' will give you the opportunity to showcase your achievements across the city and to help lead the way in delivering cleaner air for York.

- E.27 This overarching LES relates specifically to York, but the LESP who have supported the development of this document are keen to see a similar approach adopted across the country. We welcome the use of this document as a framework for the development of other overarching LESs.

### Contact us

- E.28 Any comments on the content of this document, offers of assistance to deliver LES measures in York, or advice on producing your own overarching LES should in the first instance be sent to:

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[www.york.gov.uk](http://www.york.gov.uk) | [facebook.com/cityofyork](https://www.facebook.com/cityofyork) | [@CityofYork](https://twitter.com/CityofYork)

Please contact us if you would like this information in an accessible format (for example, large print or by email) or another language

This information can be provided in your own language.

我們也用您們的語言提供這個信息 (Cantonese)

এই তথ্য আপনার নিজের ভাষায় দেয়া যেতে পারে। (Bengali)

Bu bilgiyi kendi dilinizde almanız mümkündür. (Turkish)

یہ معلومات آپ کی اپنی زبان (بولی) میں بھی میا کی جا سکتی ہیں۔ (Urdu)

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