Cambridge City Council Air Quality Action Plan 2018 - 2023

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

2018

Local Authority Officer	Anita Lewis
Department	Environmental Health
Address	Cambridge City Council, PO BOX 700, Cambridge, CB1 0JH
Telephone	01223 457616
E-mail	anita.lewis@cambridge.gov.uk
Report Reference number	AQAP 2018 - 2023
Date	January 2018

Executive Summary

This Action Plan sets out Cambridge City Council's priority actions for improving areas of poor air quality in the city and maintaining a good level of air quality in a growing city.

The plan responds to the evidence gathered from air quality monitoring across Cambridge and analysis of the sources of air pollution contributing to the problem.

Evidence and analysis show that the largest local source of air pollutants of concern are from motor vehicles and that in some city centre locations the annual average concentrations of Nitrogen Dioxide continue to exceed national objectives. The success and growth of Cambridge also continue to provide a challenge to reducing pollutant levels.

Air quality needs to be tackled in different ways and therefore Cambridge City Council, the Greater Cambridge Partnership and Cambridgeshire County Council officers have worked together to identify the range of actions required and will also take responsibility for ensuring they are progressed.

The Identified actions fall in to three main categories;

- Reducing local traffic emissions as quickly as possible to meet national objectives;
- Maintaining pollutant levels below national objectives;
- Improving public health by reducing population exposure to air pollutants.

Tackling traffic emissions locally requires a move away from the internal combustion engine and in particular diesel powered vehicles. Using the evidence available, key transport sectors will be targeted with specific policies regulating, supporting and incentivising the shift. For example, Cambridge City Council is driving a shift towards a low emission electric and hybrid licenced taxi fleet using a combination of policy and funded infrastructure support. Greater Cambridge Partnership Initiatives are also underway to effect a change to bus emissions and to reduce the impact from commercial deliveries.

Maintaining or reducing pollutant levels and improving health in the face of significant population and employment growth requires evidence-based, medium and long term

land use and transport planning actions; for example Cambridge City Council are working with the Greater Cambridge partnership to produce a detailed feasibility study for implementing a Clean Air Zone for Cambridge.

The Action Plan details the most immediate and developed actions, outlines the actions in development and highlights those wider actions contributing to improved air quality. It sets out the known timescales, and reporting metrics for those actions. The document is required however to be flexible and evolve to respond to funding and policy changes and will be reviewed and updated annually.

Responsibilities and Commitment

This AQAP was prepared by the Environmental Health Department of Cambridge City Council with the support and agreement of the following officers and departments:

Cambridge City Council
Joel Carré (Head of Environmental Services)
Yvonne O'Donnell (Environmental Health Manager)
Jo Dicks (Environmental Quality & Growth Manager)
Anita Lewis (Scientific Officer)
Stephen Kelly (Joint Director of Planning and Economic Development, with SCDC)
Julian Sykes (Planning Policy)
Sarah Dyer (City Development)
Cambridgeshire County Council
Jeremy Smith, (Head of Transport & Infrastructure Policy & Funding)
Iain Green (Public Health - for Liz Robin, Director of Public Health)
Sonia Hansen (Highways)
Greater Cambridge Partnership
Paul Rawlinson (and team)
South Cambridgeshire District Council (SCDC) – ex officio
Paul Quigley (Head of Environment Commissioning)
Soraya Hashemi (Scientific Officer)

The outline of this Air Quality Action Plan has been approved by Cambridge City Council Environment Scrutiny Committee (March 2015)[1] and the final Air Quality Action Plan will be discussed at Cambridge City Council Environment Scrutiny Committee in March 2018[2].

The Air Quality Action Plan will be subject to an annual review, appraisal of progress and reporting to the Environment Scrutiny Committee (Cambridge City Council). The Plan will also be reported to the Health Committee for information (Cambridgeshire County Council) and the Cambridge Area Joint Committee for discussion (Cambridge City Council and Cambridgeshire County Council). Progress

[1] https://democracy.cambridge.gov.uk/ieListDocuments.aspx?CId=177&MId=2570&Ver=4
[2] https://democracy.cambridge.gov.uk/mgCommitteeDetails.aspx?ID=177

each year will be reported in the Annual Status Reports (ASRs) produced by Cambridge City Council, as part of our statutory Local Air Quality Management duties.

The Air Quality Action Plan is a live document. Measures will be added and developed throughout the lifetime of this Plan.

If you have any comments on this AQAP please send them to:

Environmental Quality & Growth Team
Cambridge City Council,
PO BOX 700,
Cambridge,
CB1 0JH

01223 457900

egg@cambridge.gov.uk

Table of Contents

List of Tables

List of Figures

1 Introduction

As Cambridge grows, one of Cambridge City Council's overriding priorities is to ensure that it continues to be an economic success story, and an attractive place to live, work in and visit. This economic success has brought challenges - including more traffic on our roads, increased congestion, and at times poorer air quality. That's why we are committed to developing our second Air Quality Action Plan – focusing on 7 sets of measures that we will take, with Cambridgeshire County Council and the Greater Cambridge Partnership, to ensure that Cambridge continues to thrive in the future. The Air Quality Action Plan fits with the Cambridge City Council Visions to make Cambridge a great place to live, learn and work, and to care for the planet.

Air pollution affects everyone throughout their lifetime. Long term exposure to air pollution is a real health burden. In particular, it affects the most vulnerable in society: children and older people, and those with heart and lung conditions. Air pollution is recognised as a contributing factor in the onset of heart disease and cancer. There is also often a strong correlation with equalities issues, because areas with poor air quality are also often the less affluent areas[3,4].

The annual health cost to society of the impacts of very small particles in the air (particulate matter) alone in the UK is estimated to be around £16 billion[5]. Cambridge City Council is committed to reducing the exposure of people in Cambridge to poor air quality in order to improve health. Public Health data attributed 47 premature deaths in Cambridge to air pollution in 2010[6]. These figures do not include the adverse health impacts of nitrogen dioxide, nor do they include the effect of air pollution on morbidity, the level of illness.

[3] Environmental equity, air quality, socioeconomic status and respiratory health, 2010
[4] Air quality and social deprivation in the UK: an environmental inequalities analysis, 2006
[5] Defra. Abatement Cost Guidance for Valuing Changes in Air Quality, May 2013. https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/197898/pb13912-airquality-abatement-cost-guide.pdf
[6] These are the latest data available.

This report outlines the actions that Cambridge City Council, Cambridgeshire County Council and the Greater Cambridge Partnership will undertake between 2018 and 2023 in order to reduce concentrations of air pollutants and minimise exposure to air pollution; thereby positively impacting on the health and quality of life of residents and visitors to Cambridge.

This action plan replaces the previous action plan which ran from 2008. A key objective of the previous plan was to lower emissions from buses and taxis by requiring newer vehicles with higher Euro emission standards. A range of supporting measures including planning policies, infrastructure changes, reductions in building emissions as well as increasing cycling and walking facilities were incorporated into the previous plan. These measures remain important supporting measures to improve air quality in Cambridge so have been carried forward and refreshed in this Plan.

Whilst the plan was successful in its implementation - the bus and taxi fleet have been upgraded to newer vehicles - the anticipated improvement in air quality has not been observed; real-time emissions monitoring in Cambridge showed that emissions in the city centre are higher than those that were expected, and that improvements with increasing Euro standards are not always seen. Projects delivered through the past action plan are listed in Appendix A.

This Action Plan 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. It has been developed by officers from both the city and county councils. Progress on the measures in this plan will be reviewed annually and reported within Cambridge City Council's air quality Annual Status Report to Defra. The plan is designed to be responsive and flexible, so measures will be developed, removed or added in throughout its lifetime, as required.

The key objective of this plan is to encourage, enable and require, where appropriate, the shift from internal combustion engine vehicles to low emission petrol hybrid and ultra low emission electric vehicle. Our priorities are to tackle emissions

from transport through a range of hard and soft measures. The 7 main areas for action (the sets of measures) are:

1. Reduce emissions from Taxis by requiring low emission taxis
2. Reduce emissions from Buses and Coaches
3. Reduce emissions from HGVs
4. Reduce emissions from all traffic/other traffic by providing better public transport
5. Maintaining Low Emissions through the planning process and long-term planning
6. Improving Public Heath
7. Leading By Example

Work on these elements of the plan is already in progress. Details on these key priorities and measures for delivering them are provided in Section 3.5; a full list of measures is in Chapter 4. These will include, for example,

- provision of electric vehicle charge points (slow, fast and rapid) to enable the transition to low emission taxis and other vehicles,
- licensing policies,
- parking policies,
- development control policies to require provision of EV charge points and low emission boilers,
- improving provision of lower emission travel alternatives, such as low emission buses
- a Clean Air Zone

However, reducing emissions is only the first strand of the Air Quality Action Plan. The second strand is to ensure that emissions remain at levels below the National Air Quality Objectives; the third is to improve public health by reducing air pollution levels and keeping them as low as possible. We will deliver these objectives by effective planning controls and ensuring that policies are in place to keep emissions low.

In this AQAP we outline how we plan to effectively tackle those air quality issues that are 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), so Cambridge City Council officers will continue to work with regional and central government on policies.

2 Summary of Current Air Quality in Cambridge

The centre of Cambridge was designated as an Air Quality Management Area (AQMA) in 2004 because the level of nitrogen dioxide (NO_2) was, and remains, above the National Air Quality Objectives (NAQO). Air quality has been improving, slowly, in most parts of Cambridge in recent years, but there are parts of the city, including the busy central streets, where levels of nitrogen dioxide continue to be higher than the legal limits.

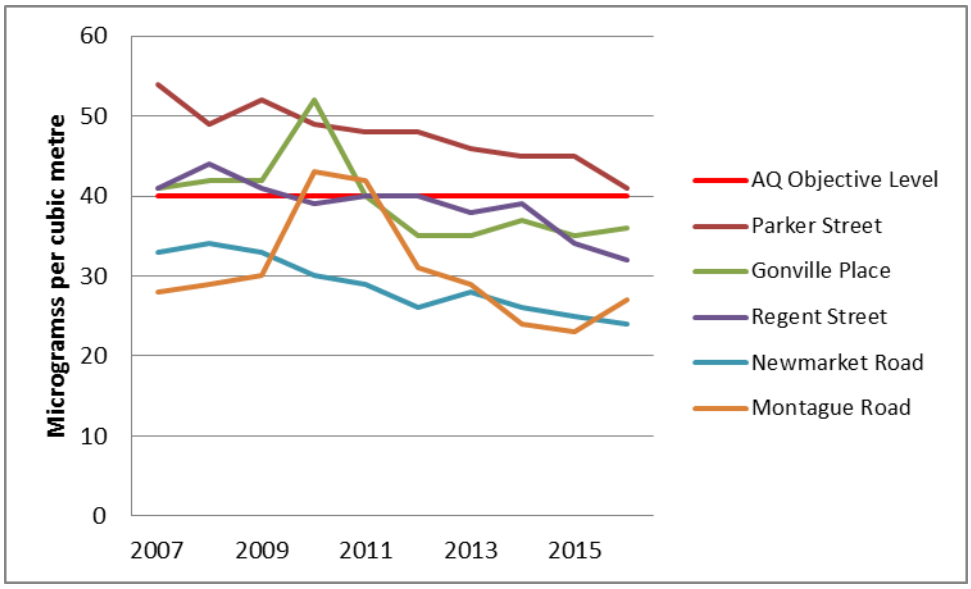


Figure One Trends in Annual Mean Nitrogen Dioxide Concentrations measures at Automatic Sites

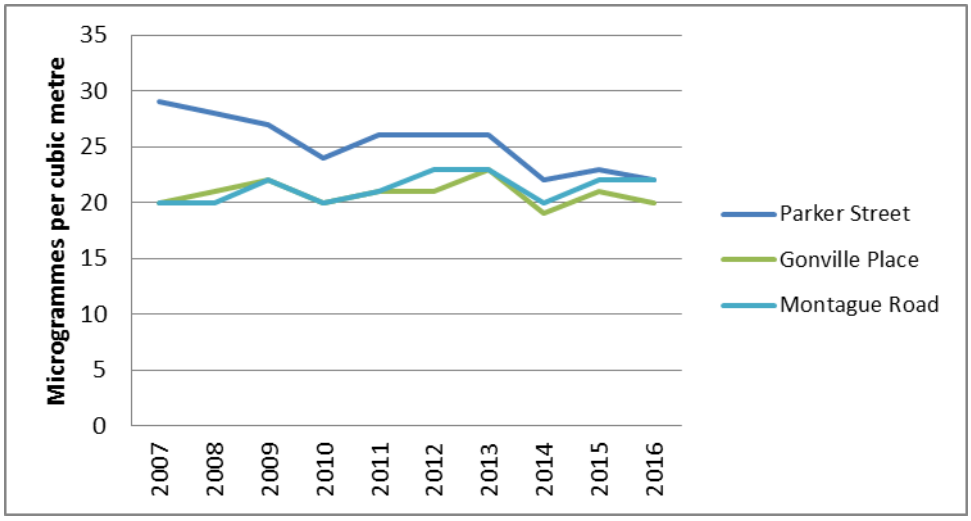


Figure Two Trends in Annual Mean PM_{10} Concentrations

The main source of nitrogen dioxide in Cambridge is from vehicle emissions, so the Air Quality Action Plan will focus primarily on ways to reduce these emissions, as well as reducing other sources of air pollution. There are also legal limits for small particles, known as PM_{10}[7]. The levels of PM_{10} in Cambridge are well below the legal limits (annual mean 40 micrograms per cubic metre), so this Plan focusses on reducing levels of nitrogen dioxide. (There are no UK legal limits for $PM_{2.5}$[8] in England and Wales; the EU limit is 25 microgrammes per cubic metre annual mean and the objective is 12 microgrammes per cubic metre in Scotland.)

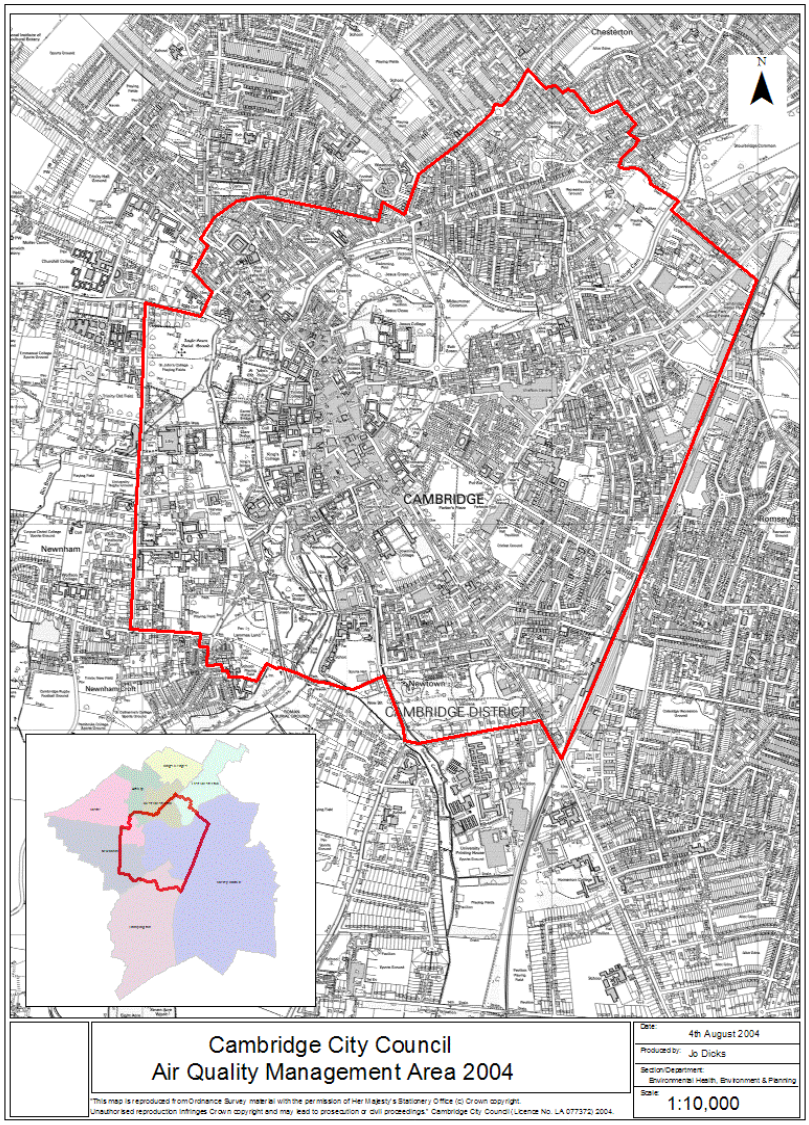


Figure Three Cambridge Air Quality Management Area[9]

[7] PM_{10} denotes particulate matter of diameter less than or equal to 10 micrometers (microns)
[8] $PM_{2.5}$ denotes particulate matter of diameter less than or equal to 2.5 micrometers (microns)
[9] A high resolution map is available here: https://www.cambridge.gov.uk/air-pollution-in-cambridge

Air Quality in 2016

Air quality in Cambridge is measured at 5 locations with continuous analysers providing highly accurate data on levels of nitrogen dioxide (5 sites), PM10 (3 sites) and PM2.5 (2 sites). Diffusion tubes measure levels of nitrogen dioxide at 63 locations in Cambridge. Full details of the monitoring programme are set out in the Annual Status Report to Defra[10].

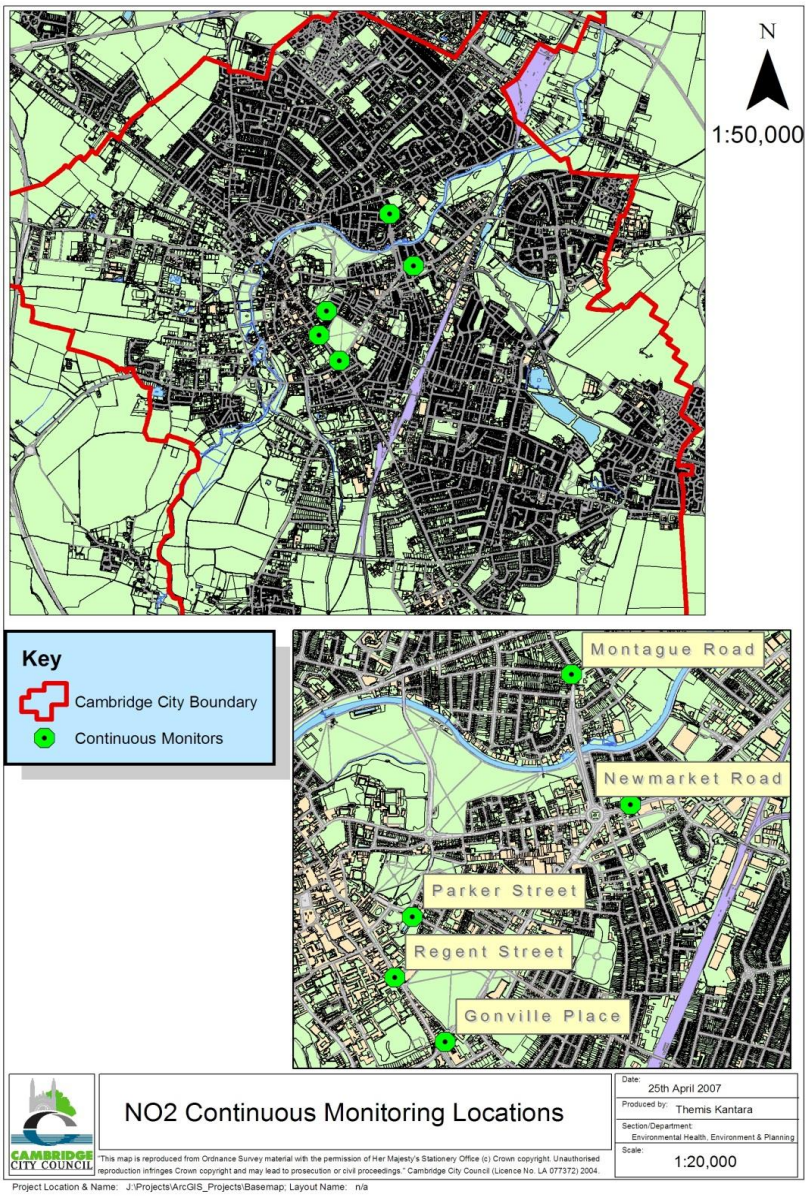


Figure Four Locations of monitors in Cambridge[11]

[10] https://www.cambridge.gov.uk/sites/default/files/2017_asr_final.pdf
[11] A higher resolution map is available here: https://www.cambridge.gov.uk/monitoring-air-pollution

The trends noted from the recorded levels of air pollution in 2016 were more variable than usual, with improvements in some areas and deterioration in others. Overall, the sites away from busy roads recorded slightly higher levels of nitrogen dioxide than in 2015 and the sites by busy roads recorded slightly lower levels than in 2015. Trends around the bus station and the railway station are mixed, and levels of air pollution in the south of Cambridge has recorded a small increase. Levels of PM_{10}, and $PM_{2.5}$ continue to demonstrate a variable trend, with very slowly decreasing levels overall.

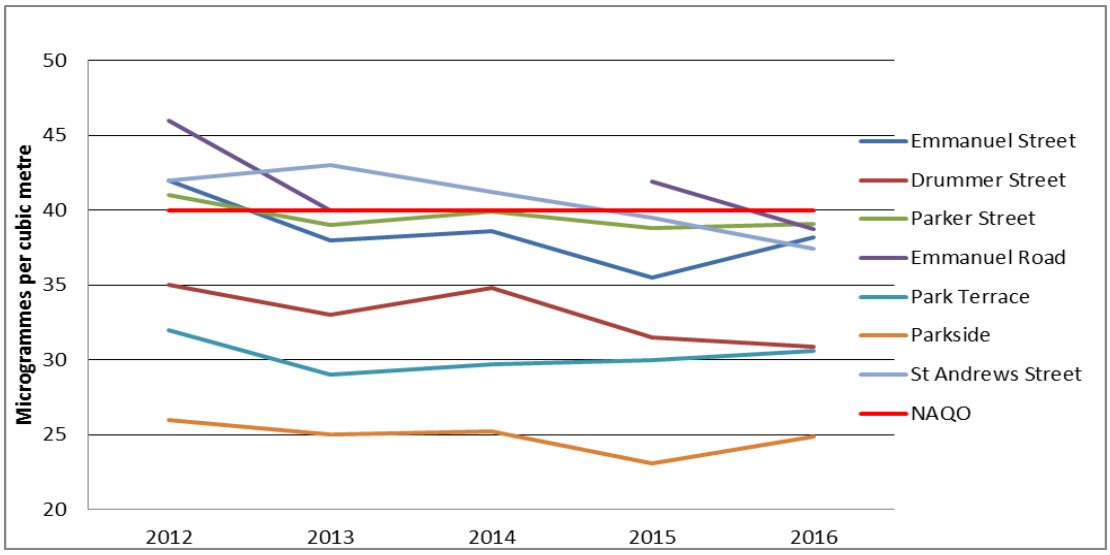


Figure Five Trend in averaged mean annual NO_2 for Bus Station area

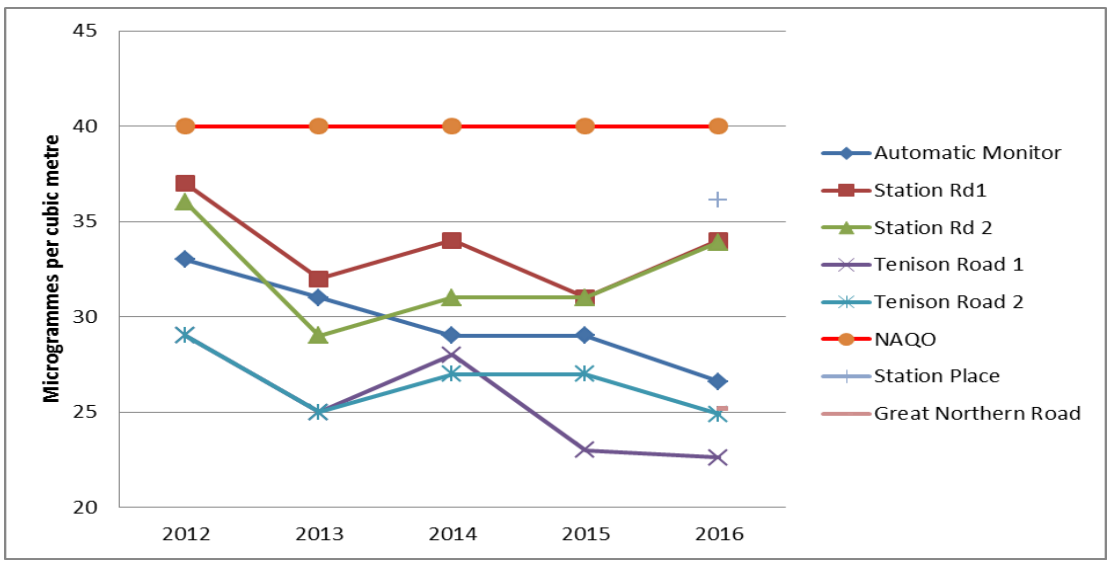


Figure Six Trend in averaged mean annual NO_2 for CB1[12]

[12] The diffusion tube at Great Northern was in place before the road became the principal route into the Station. The measurements are now higher than the measurement recorded her for 2016. Data for 2017 is not yet available. It will be reported in the Annual Status Report in June 2018.

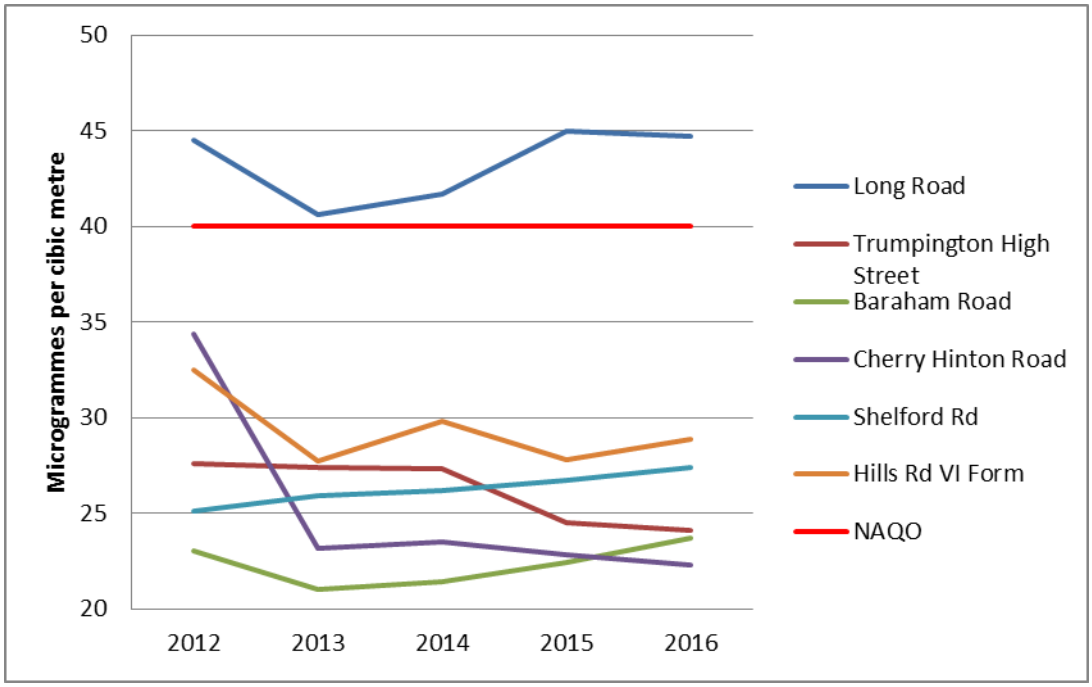


Figure Seven Trends in averaged mean annual NO_2 in South Cambridge

Whilst levels of air quality in Cambridge have been improving slowly overall, there is a real possibility that this will not continue and may even deteriorate unless measures are put in place to deliver further air quality improvements. Cambridgeshire has one of the fastest growing economies and populations in Britain, with 44,000 new jobs, 33,500 new homes and a 22% increase in population predicted between 2010 and 2031. In the past, much of the growth around Cambridge has been directed to the South Cambridgeshire villages beyond the Green Belt, resulting in a growth of commuting by car to Cambridge (50% of the Cambridge workforce commute into the city), as well as increasing congestion and pollution. While the new urban extensions to the edge of Cambridge have sought to redress the balance between homes and jobs, future increases in population of Cambridgeshire are predicted to continue in new communities outside of the city of Cambridge, including Northstowe (up to 10,000 dwellings) and Waterbeach (up to 12,000 dwellings) with associated, business, retail, community, leisure and sports uses; hotels; new primary and secondary school). These new communities will be delivered in parallel with improvement to public transport infrastructure as part of the range of proposals being developed by the Greater Cambridge Partnership (GCP) in order to promote more sustainable modes of transport and reduce the impact of private modes of transport.

These increases in economic and population will result in an increased demand for travel to, from and within the city. Therefore, a range of measures are required to ensure that air quality can continue to be delivered alongside the growth of Cambridgeshire. The keys to ensuring that levels of air pollution below the National Air Quality Objectives are achieved and maintained are to have the necessary transport infrastructure in place to enable sufficient uptake of lower emission transport modes, together with relevant supporting policies and strategies so that these will be maintained in the future. The GCP ambition of 10 - 15% less traffic within Cambridge may require further restrictions on access to the city centre, which could include restrictions based on emissions to reduce air pollution.

Funding and powers have been agreed for the Greater Cambridge Partnership, (GCP)[13] from central government, to help address these issues. The implementation of GCP projects for public transport, active travel infrastructure improvements, integrated public transport provision, including rail and low emission bus, will be essential to protect the city from the adverse impacts of travel demand from these new communities.

[13] https://www.greatercambridge.org.uk/

3 Cambridge City Council's Air Quality Priorities

In this chapter Cambridge City Council sets out its air quality priorities and drivers for action to improve air quality. These are set in the local public health and planning policy context in the Greater Cambridge[14] area. This includes the technical supporting evidence with source apportionment of the main sources of air pollution, as well as the necessary reductions required to meet the air quality objectives.

The priorities for Cambridge City Council are to reduce emissions to below the National Air Quality Objectives, the second is to ensure that emissions remain at levels below the National Air Quality Objectives, and the third is to improve public health by continuously acting to reduce air pollution levels.

3.1 Public Health Context

Public health is a key driver for making improvements in air quality. Long term exposure to air pollution is a real health burden and it affects everyone. Air pollution causes diseases of the heart and lungs, contributes to poor public health and shortens life. Diesel engine exhaust, outdoor air pollution and particulate matter have all been classified by the World Health Organisation (WHO) as carcinogenic to humans[15] [16]. Air pollution affects our daily quality of life as it aggravates lung conditions such as Chronic Obstructive Pulmonary disease (COPD) and asthma. Additionally, air pollution can reduce lung development in children, which may increase symptoms in children who develop such conditions as asthma. There is also evidence that outdoor air pollution causes lung cancer[17].

[14] The Greater Cambridge City region includes the districts of Cambridge City Council and South Cambridgeshire District Council.

[15] IARC: Diesel engine exhaust carcinogenic, WHO International Agency for Research on Cancer, Press release No 213, June 12, 2012. http://www.iarc.fr/en/media-centre/pr/2012/pdfs/pr213_E.pdf

[16] IARC: Outdoor air pollution a leading environmental cause of cancer deaths, WHO International Agency for Research on Cancer, Press release No 221, October 17, 2013. http://www.iarc.fr/en/media-centre/iarcnews/pdf/pr221_E.pdf

[17] Defra and Public Health England (2017) Air Quality: A Briefing for Directors of Public Health https://www.local.gov.uk/air-quality-briefing-directors-public-health

Children and older people are particularly affected. **Air pollution is harmful for human health at all concentrations, including below the legal limits**, so it is important to do what we can to continue to improve air quality. This section sets out the public health context – the legal and policy framework, as well as the implications for health.

The Public Health Outcomes Framework indicator (3.01)[18] for air pollution is about raising awareness of the effect of air pollution on public health. It is intended to encourage promotion of the need for local, regional and national actions to reduce air pollution and to help form a partnership between all delivery partners in pursuit of this goal. The Public Health Outcomes Framework concentrates on two high-level outcomes to be achieved across the public health system - how long people live and how well they live at all stages of life.

Public Health data attributed 257 premature deaths in Cambridgeshire in 2010[19] to Particulate Air Pollution. Over 5% of Cambridgeshire's population mortality is attributed to air pollution (based on ambient levels of $PM_{2.5}$). The percentage in Cambridge is 5.8% which equates to 47 premature deaths attributable to $PM_{2.5}$ air pollution in 2010. These figures do not include the effect of air pollution on morbidity, the prevalence of illness.

Air quality is a 2018/19 priority for Cambridgeshire County Council Health Committee and an information sharing/awareness raising event is under discussion for 2018.

The Local Air Quality Management Policy and Technical Guidance[20] on public health refers only to reducing emissions and/or concentrations of $PM_{2.5}$. There is clear evidence that $PM_{2.5}$ has a significant impact on human health, including premature mortality, allergic reactions, and cardiovascular diseases. However, the public health impact of air pollution is wider than $PM_{2.5}$; the health impacts of nitrogen dioxide are also significant and therefore included in this discussion.

[18] https://fingertips.phe.org.uk/profile/public-health-outcomes-framework/data#page/3/gid/1000043/pat/6/par/E12000004/ati/102/are/E06000015
[19] This is the latest data available.
[20] https://laqm.defra.gov.uk/supporting-guidance.html

The published Public Health data does not include the effect of nitrogen dioxide. Recent evidence demonstrates that there are negative health impacts from nitrogen dioxide at all levels, not just those above the National Air Quality Objectives. Studies[21] suggest that there is a 5 – 5.5% increase in mortality for each additional 10 micrograms per cubic metre exposure to nitrogen dioxide. The 2015 Committee on the Medical Effects of Air Pollution (COMEAP) working group on nitrogen dioxide noted[22] that it is possible that nitrogen dioxide acts as a marker of the effects of other traffic-related pollutants; it is unclear if nitrogen dioxide itself is the cause. However, COMEAP do state that any measures to reduce traffic-related pollutants will reduce mortality by 5 - 5.5% for each 10 micrograms per cubic metre.

The Air Quality Plan Technical Report published by Defra[23] notes that morbidity impacts have not been assessed, nor have other impacts such as damage to neurodevelopment, cognitive function and cardiovascular disease. The implication is that the health impact from air pollution has not yet been fully evaluated.

3.2 Planning and Policy Context

Local planning and policy has several layers of strategy and policy so this section sets out a summary of the Cambridge/Cambridgeshire planning framework and comments on where there is an opportunity to improve air quality. The framework has changed since the previous Air Quality Action Plan.

The National Framework

The National Planning Policy Framework[24] (NPPF) published in 2012 set out the Government's planning policies for England. The purpose of the planning system is to contribute to the achievement of sustainable development. The document states that economic growth can secure higher social and environmental standards; well-designed buildings and places can improve the lives of people and communities.

[21] For example, Hoek et al, 2013; WHO, 2013; Faustini et al, 2014 and references in these studies
[22] https://www.gov.uk/government/publications/nitrogen-dioxide-interim-view-on-long-term-average-concentrations-and-mortality
[23] https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/632916/air-quality-plan-technical-report.pdf
[24] https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/6077/2116950.pdf

The planning system should play an active role in guiding development to sustainable solutions. Air Quality is a material planning consideration.

Twelve core planning principles are set out in the NPPF to ensure that planning is a creative exercise in finding ways to enhance and improve the places in which people live their lives, to secure high quality design and a good standard of amenity for all existing and future occupants of land and buildings. Development should contribute to conserving and enhancing the natural environment, reducing pollution, take account of and support local strategies to improve health, social and cultural wellbeing for all, as well as deliver sufficient community and cultural facilities and services to meet local needs.

Six of these key core principles will ensure that positive environmental impacts, specifically on air quality, are delivered. Two of these are specifically directly related to improving air quality:

- Promoting sustainable transport

Transport policies have an important role to play in facilitating sustainable development but also in contributing to wider sustainability and health objectives. In preparing Local Plans, local planning authorities should therefore support a pattern of development which facilitates the use of sustainable modes of transport, including:

  - giving priority to pedestrian and cycle movements
  - access to high quality public transport facilities
  - creating safe and secure layouts which minimise conflicts between traffic and cyclists or pedestrians
  - establishing home zones
  - incorporating facilities for charging plug-in and other ultra-low emission vehicles
  - considering the needs of people with disabilities by all modes of transport.

Where practical, particularly within large-scale developments, key facilities such as primary schools and local shops should be located within walking distance of most properties. Local planning authorities should identify sites and routes which could be critical in developing infrastructure to widen transport choice.

- Conserving and enhancing the natural environment

The NPPF specifically refers to air pollution in this section, where it states that the planning system should contribute to and enhance the natural and local environment by preventing both new and existing development from contributing to or being put at unacceptable risk from, or being adversely affected by unacceptable levels air pollution.

> ***"Planning policies should sustain compliance with and contribute towards EU limit values or national objectives for pollutants, taking into account the presence of Air Quality Management Areas and the cumulative impacts on air quality from individual sites in local areas. Planning decisions should ensure that any new development in Air Quality Management Areas is consistent with the local air quality action plan."***

A further four key core principles have a strong supporting role in ensuring that air quality is improved.

- Ensuring the vitality of town centres
- Supporting a prosperous rural economy
- Requiring good design
- Promoting healthy communities

Implementation of these four principles will result in both existing and new communities that will be designed from the outset (or redesigned) to have a lower demand for travel to access retail, health, work and leisure facilities, and that people will be able to move around more easily using non-polluting transport modes in a high quality public realm with safe and secure layouts.

The Local Framework

There have been significant changes in the organisation of local government in the region recently, which will impact upon planning policy at the regional and local level. These changes are outlined here.

Local Plan Policies

The emerging Local Plans for Cambridge and South Cambridgeshire make provision for 33,000 new homes and 44,000 additional jobs in the period to 2031. They were prepared for joint examination by the Planning Inspector in 2014; the final report is expected in 2018.

Policy 36 of the emerging Cambridge Local Plan includes the policy that any development will not interfere with the implementation of the current Air Quality Action Plan (AQAP).

Policy 36: Air quality, odour and dust

Development will be permitted where it can be demonstrated:
a. that it does not lead to significant adverse effects on health, the environment or amenity from polluting or malodorous emissions, or dust or smoke emissions to air; or
b. where a development is a sensitive end-use, that there will not be any significant adverse effects on health, the environment or amenity arising from existing poor air quality, sources of odour or other emissions to air.
According to the end-use and nature of the area and application, applicants must demonstrate that:
c. there is no adverse effect on air quality in an air quality management area (AQMA);
d. pollution levels within the AQMA will not have a significant adverse effect on the proposed use/users;
e. the development will not lead to the declaration of a new AQMA;
f. the development will not interfere with the implementation of the current Air Quality Action Plan (AQAP);
g. any sources of emissions to air, odours and fugitive dusts generated by the development are adequately mitigated so as not to lead to loss of amenity for existing and future occupants and land uses; and
h. any impacts on the proposed use from existing poor air quality, odour and emissions are appropriately monitored and mitigated by the developer.

The full version of Policy 36 in in Appendix G.

Other policies in the emerging Local Plan will also assist with the delivery of the Air Quality Action Plan, including:

Policy 5: Strategic transport infrastructure

Policy 80: Supporting sustainable access to development

Policy 81: Mitigating the transport impact of development

Policy 82: Parking Management.

Work is due to commence on a joint Local Plan for the Greater Cambridge area in 2019, which will include consideration of future housing and jobs growth for the new area. The development strategy for the area is based on a sequential approach for the location and distribution of new development, which can be described as:

1. Within the existing urban area of Cambridge
2. Within the defined fringe sites on the edge of Cambridge
3. Within the six small-scale Green Belt sites proposed to be released from the inner Green Belt boundary
4. Within existing and newly identified new settlement locations at Cambourne, Northstowe, Bourn Airfield and Waterbeach; and
5. In identified villages in South Cambridgeshire

Local Transport Plans

Cambridgeshire and Peterborough both have Local Transport Plans in place – the Cambridgeshire Local Transport Plans runs until 2031 and the Peterborough Local Transport Plan until 2033. Both of the Local Transport Plans have been adopted by the Cambridge and Peterborough Combined Authority as an interim measure for the next 12 – 24 months until the new Combined Authority Local Transport Plan will be ready for adoption in 2019. The new Local Transport Plan will provide a high level policy framework and will be in preparation in early 2018.

The current Cambridgeshire Local Transport Plan (LTP3, 2011 - 2031)[25] includes strategies to manage the issues affecting Cambridgeshire, including the large-scale growth planned across the county, with the associated pressure on the transport network and the environment, and the risks of increased congestion and carbon dioxide emissions and worsening air quality. The new Local Transport Plan for the Cambridgeshire and Peterborough Combined Authority will include high-level strategies to deliver policies and measures that can reduce emissions of air pollutants by encouraging and promoting the uptake of low emission fuels and technologies, as well as continuing with policies and measures to promote and encourage uptake of sustainable transport options.

The new Local Transport Plan will be supported by area strategies, such as the Cambridge City and South Cambridgeshire Transport Strategy[26], and thematic strategies, such as Cycling and Walking strategies. These strategies will provide detailed policy frameworks and programmes of schemes for each area; they will support the Local Plans. Delivery plans will be developed to set out how the Plans will be achieved. The Greater Cambridge Partnership (GCP) will be involved with any forthcoming strategies for Cambridge City and South Cambridgeshire.

Greater Cambridge Partnership

The Greater Cambridge Partnership (GCP) is the local delivery body for a City Deal with central Government, bringing powers and investment, worth up to £1 billion over 15 years, to vital improvements in infrastructure, supporting and accelerating the creation of 44,000 new jobs, 33,500 new homes and 420 additional apprenticeships. The GCP brings key partners together to work with communities, businesses and industry leaders to support the continued growth of one of the world's leading tourism and business destinations. The partners are Cambridge City Council, Cambridgeshire County Council, South Cambridgeshire District Council, the University of Cambridge and the Greater Cambridge and Greater Peterborough Local Enterprise Partnership.

[25] https://www.cambridgeshire.gov.uk/residents/travel-roads-and-parking/transport-plans-and-policies/local-transport-plan/

[26] https://www.cambridgeshire.gov.uk/residents/travel-roads-and-parking/transport-plans-and-policies/cambridge-city-and-south-cambs-transport-strategy/

The Greater Cambridge Partnership vision is to make it easier to travel into, out of and around Cambridge and South Cambridgeshire by public transport, cycle or on foot, and to reduce and maintain lower traffic levels into and around the city to ease congestion, through the creation of better, greener transport networks that connect people to homes, jobs, study and opportunity, and investment in Smart Technology.

Around 206,000 vehicles travel in and out of Cambridge every day, with 50,000 workers travelling in alone. Without measures to deal with the increase in population and employment, by 2031 traffic in Cambridge is expected to increase by over 30% in the morning peak (and traffic in South Cambridgeshire is expected to increase by almost 40% in the morning peak).

Many of the key measures in the Air Quality Action Plan will be progressed through the Greater Cambridge Partnership, which holds some of the funding for local transport projects.

A significant increase in provision of public transport will be required to accommodate the increased demand for travel in the Greater Cambridge area, as well as to enable the GCP ambition of 10 - 15% less traffic within Cambridge, to allow vehicles, public transport in particular, to circulate more freely and become more reliable. Protection of the historic city centre and its surrounding area from the pressure of growth is a key ambition of the GCP, including the need to improve air quality.

The Greater Cambridge Partnership held a consultation (the Big Conversation) to the end of November 2017 with the public and stakeholders about the Greater Cambridge growth story to make sure everyone has the opportunity to state their needs, have their say, and influence how their future is shaped as the Greater Cambridge Partnership look towards future investment plans. Plans will be developed following the consultation, and it is anticipated that progress will be made in 2018.

The City Access Strategy work has already started; this is a package of proposed measures to tackle congestion within Cambridge and encourage sustainable modal shift by the creation of a transport system that meets the needs of our city. It **plans to achieve and lock in a reduction in traffic levels in Cambridge by 10-15% from 2011 traffic levels by 2031**. It aims to help more people get into, out of and around

the city by sustainable means, offer better alternatives to travel by car, and boost economic growth and quality of life.

Following the 'Tackling Peak-time Congestion' engagement in 2016, the City Access team is developing a package of proposed measures, which may consider demand management measures (fiscal and/or physical) for Cambridge, along with improvement of air quality, potentially through a road-user charging mechanism and/or a Workplace Parking Levy.

1. Cycling provision

The City Access team will continue to work with partners on improving cycling routes, facilities and parking infrastructure to encourage enable further modal change to cycling.

2. Improved public space and air quality

In recognition of the strong public support for addressing air quality, the team will research options for establishing a Clean Air Zone in Cambridge.

A Spaces and Movement Supplementary Planning Document (SPD) will be produced to ensure that any new development and transport infrastructure considers the relationship between public spaces and travel movements as part of their planning.

3. Better bus services and expanded use of Park & Ride

By working closely with bus operators, the team will review and improve the bus network, potential through the provision of demand management measures and/or road space reallocation, additional Park & Ride capacity and smart ticketing, to speed up bus journeys and make them more reliable.

The GCP Transport Strategy aims to improve bus services through the better use of the limited road space in the city, such as by giving priority to public transport over private car trips, particularly those that can be substituted by other modes of transport. One aspect of encouraging this substitution is to provide attractive, green and reliable alternatives, for example electric buses, on part or all of the city's bus network. Therefore, the GCP has commissioned a feasibility study into the provision of electric/hybrid public transport options. A pilot scheme is proposed.

4. Travel planning

The City Access team will work with Travel for Cambridgeshire[27] and other partners in supporting employers and employees to adopt sustainable policies and practices for commuter and business travelling.

5. Smart technology

Work will continue with Smart Cambridge[28] to harness emerging technologies to find smart and innovative ways to tackle urban challenges, such as transport, air quality, energy and health care.

The City Access team has also commissioned a traffic signals review, to look at the current infrastructure and consider the potential future of signal technology, with the long-term aim of optimising the movement of people and providing a reliable and attractive sustainable travel network, which it is anticipated should also realise air quality benefits.

6. Traffic management

Options are to be considered for tackling congestion within the city and improving sustainable transport. To support this, the team has carried out one of the largest Automatic Number Plate Recognition (ANPR) camera-based traffic surveys ever undertaken. Data from this will support a new traffic model to test emerging options within Cambridge including air quality data that will be able to be used to assess potential interventions and network changes.

7. A Workplace Parking Levy

Consideration is being given to the development and implementation of a Workplace Parking Levy (WPL). If a WPL is progressed, the City Access team would work closely with employers to develop and co-design a practical and effective scheme that works for businesses and organisations. Such a WPL would be intended to discourage commuter traffic and raise funds that could be re-invested into schemes that support traffic reduction measures while enabling and enhancing sustainable transport provision.

[27] Travel for Cambridgeshire (TfC) is Cambridgeshire's largest sustainable travel membership association, http://www.travelcambs.org.uk/

[28] Smart Cambridge is exploring how data, innovative technology and better connectivity can be used to transform the way people live, work and travel in the Greater Cambridge area and beyond. http://www.connectingcambridgeshire.co.uk/smartcamb/

8. On-street parking controls (including Controlled Parking Zones)

The team are actively supporting projects, including the Cambridge City Joint Area Committee (CJAC) project to manage on-street parking in city residential areas.

A more comprehensive list of GCP projects is listed in Appendix H.

Combined Authority and a Mayor for the Devolved Area

In November 2016, all seven Cambridgeshire and Peterborough local authorities agreed to pursue the devolution deal made with central government, which means that the local Cambridgeshire and Peterborough Combined Authority[29] makes decisions on housing, transport and major infrastructure projects. The Combined Authority is made up of eight founding members across Cambridgeshire and Peterborough. The first official meeting of the Cambridgeshire and Peterborough Combined Authority took place on 20th March 2017. A Mayor was elected in May 2017 to give the Combined Authority a focal point and will be the contact for Central Government.

Non-Statutory Spatial Plan

The Cambridgeshire and Peterborough Combined Authority (CPCA) approved for work to commence on a Non-Statutory Spatial Plan (NSSP) for Cambridgeshire and Peterborough in July 2017. The plan will focus on major additional sustainable and transport-linked sites for housing and jobs, with a focus also on infrastructure needs, affordable housing and assisting growth in disadvantaged areas.

The NSSP will be developed in two phases. Phase one will set out the existing development strategy from adopted and emerging local plans (up to 2031/36), including strategic development locations and dependent strategic infrastructure. This first phase will include a particular emphasis on delivery of the existing planned strategy, linking to housing, investment and transport and infrastructure strategies. Phase Two will look at growth beyond 2031/2036.

[29] http://www.cambspboroca.org/

3.3 Source Apportionment

Source apportionment shows that traffic emissions are the main source of air pollution in the city, with the major contribution being from buses in the historic city centre and cars elsewhere. The measures presented in this report are targeted towards the predominant sources of Nitrous Oxides[30] (NOx) emissions within Cambridge City Council's area.

A source apportionment exercise[31] was carried out by Cambridge City Council in 2017, using a baseline year of 2015 (CERC, 2017).

This identified that within the AQMA, the percentage source contributions were as follows:

City Centre NOx sources

81% of NOx emissions are from Roads, of which 45% NOx are emitted from buses, 31% from HGV, 9% from taxis, 8% from cars, and 6% from LDV(LGV).

Ring Road NOx sources

73% of NOX emissions are from Roads, of which 14% NOx are emitted from buses, 19% from HGV, 4% from taxis, 43% from cars, and 20% from LDV(LGV).

These data are presented in Table 1.1 and Table 1.2 in Appendix B, and Figures 8 – 13 on the following pages.

Figures 8 – 10 show the overall breakdown of sources of emissions, as well as the emission sources for the city centre and the ring roads.

Figures 11 – 13 show the breakdown of emissions source by vehicle type, the relative contributions of cars, buses, lorries, vans and taxis.

[30] Exhaust emissions are a mix of substances including the group nitrous oxides, a mix of nitrogen dioxide and nitric oxide (NO_2 and NO). NO can react with oxygen in the atmosphere to produce more NO_2.

[31] Air Quality Source Apportionment for Cambridge City Council (2017), Cambridge Environmental Research Consultants

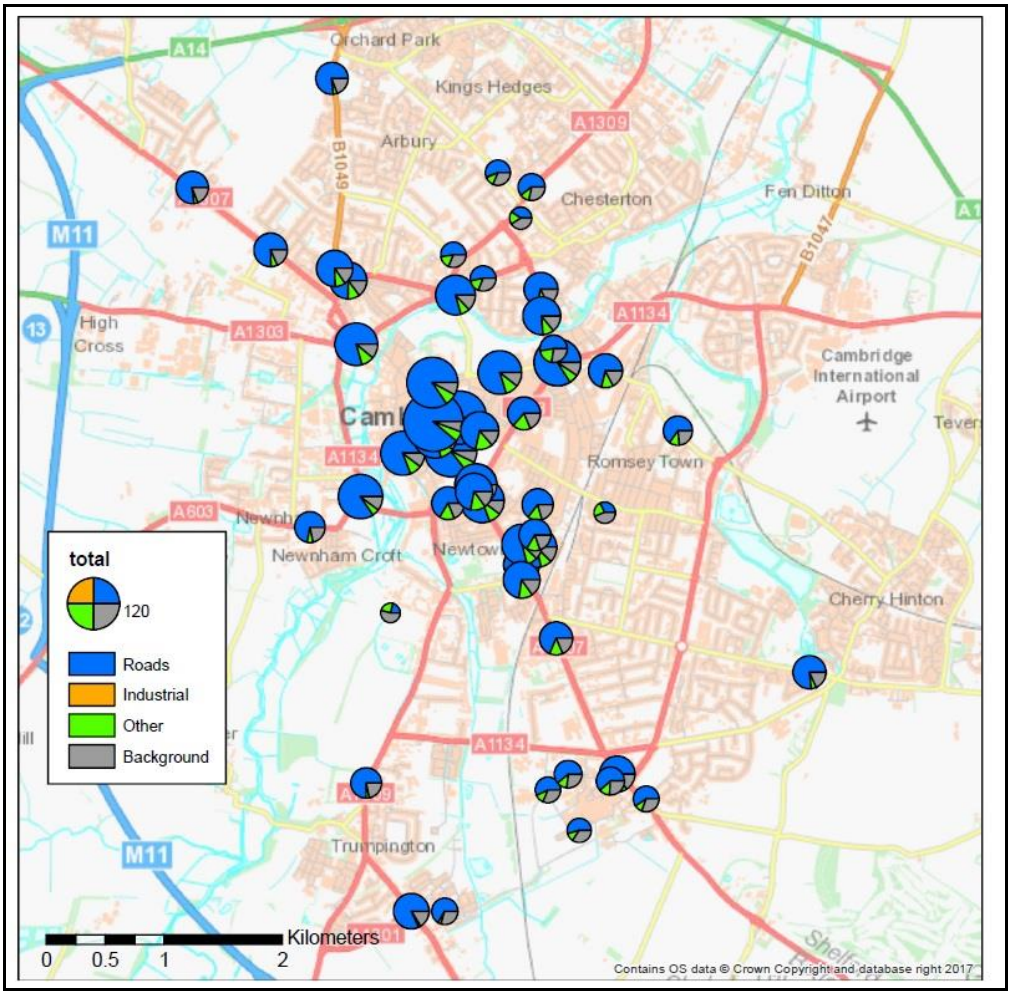


Figure Eight Source of NOx by source type (CERC, 2017)

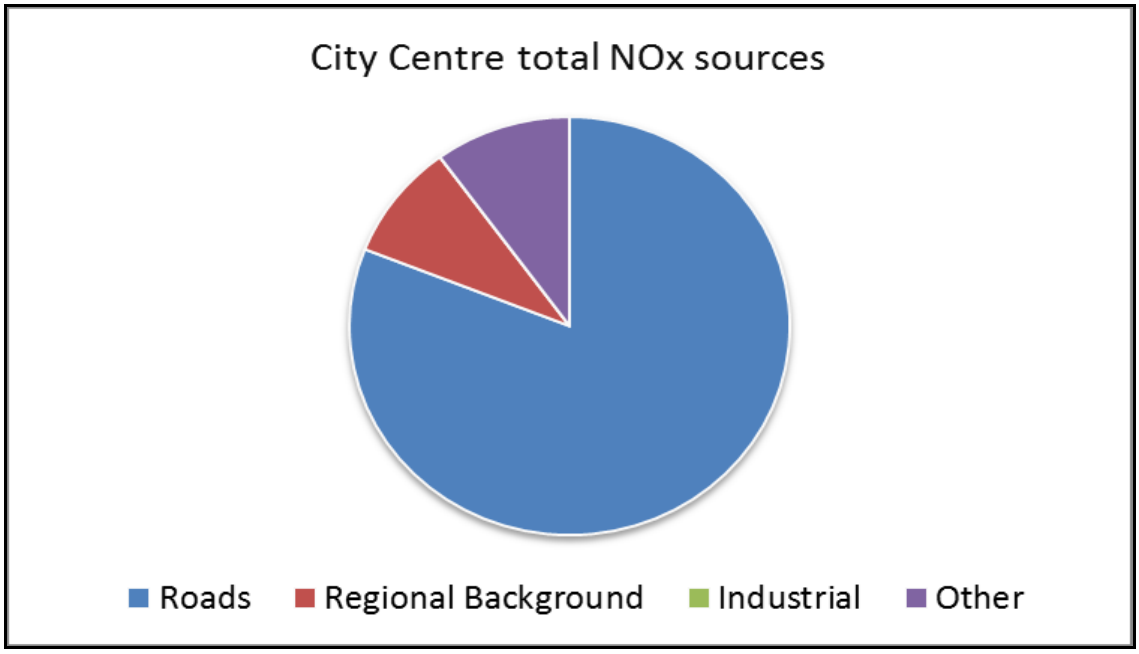


Figure Nine Sources of NOx in Cambridge City Centre

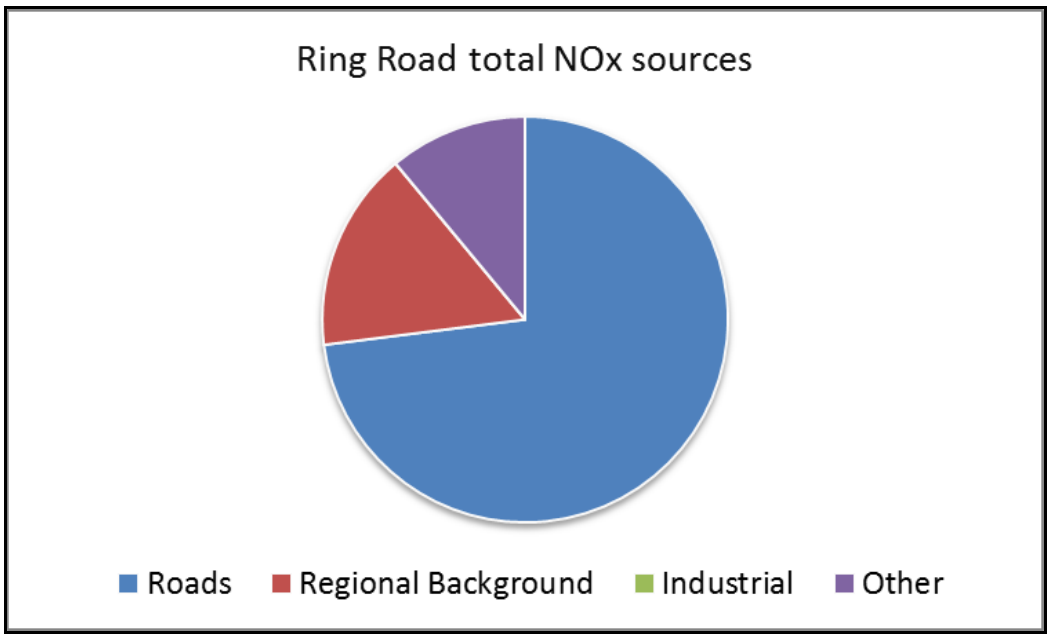


Figure Ten Sources of NOx on Cambridge Ring Road

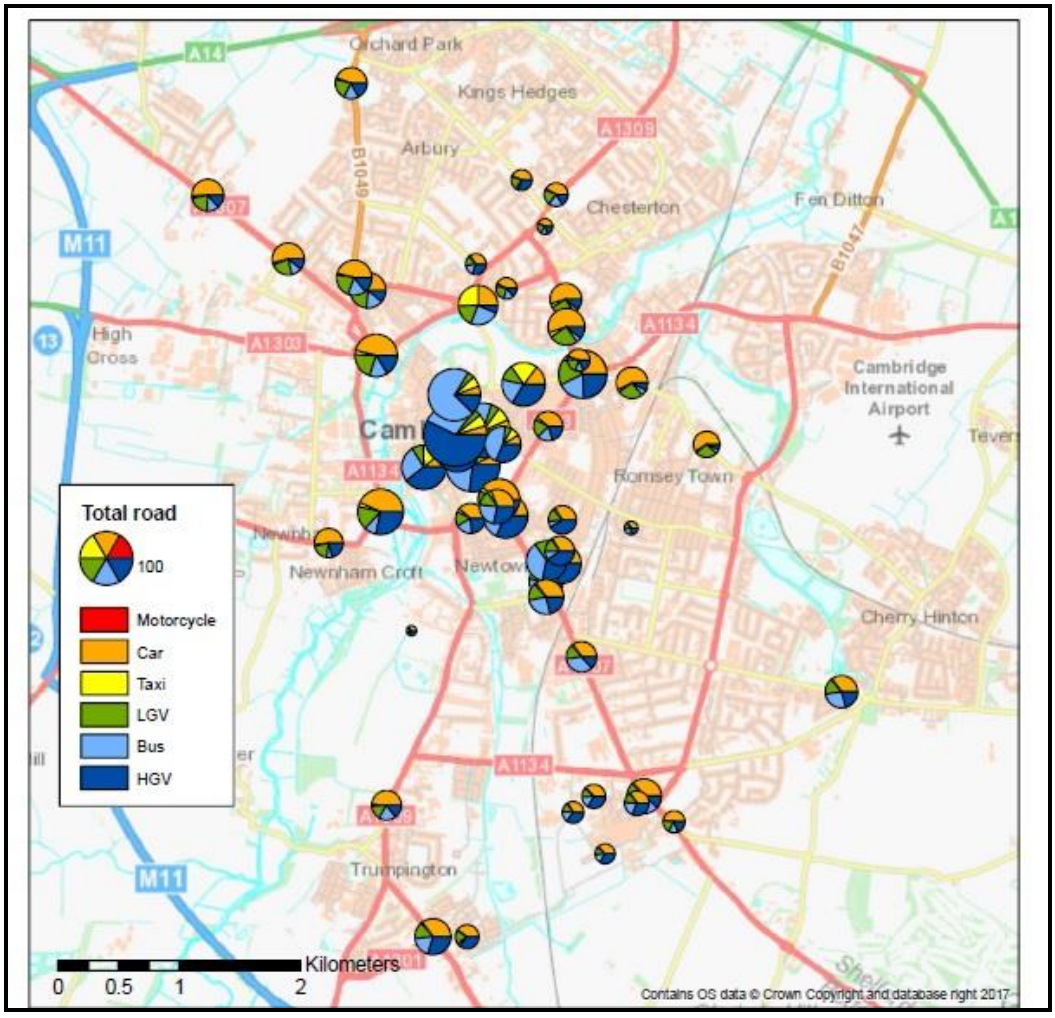


Figure Eleven Source of NOx by vehicle type across Cambridge (CERC, 2017)

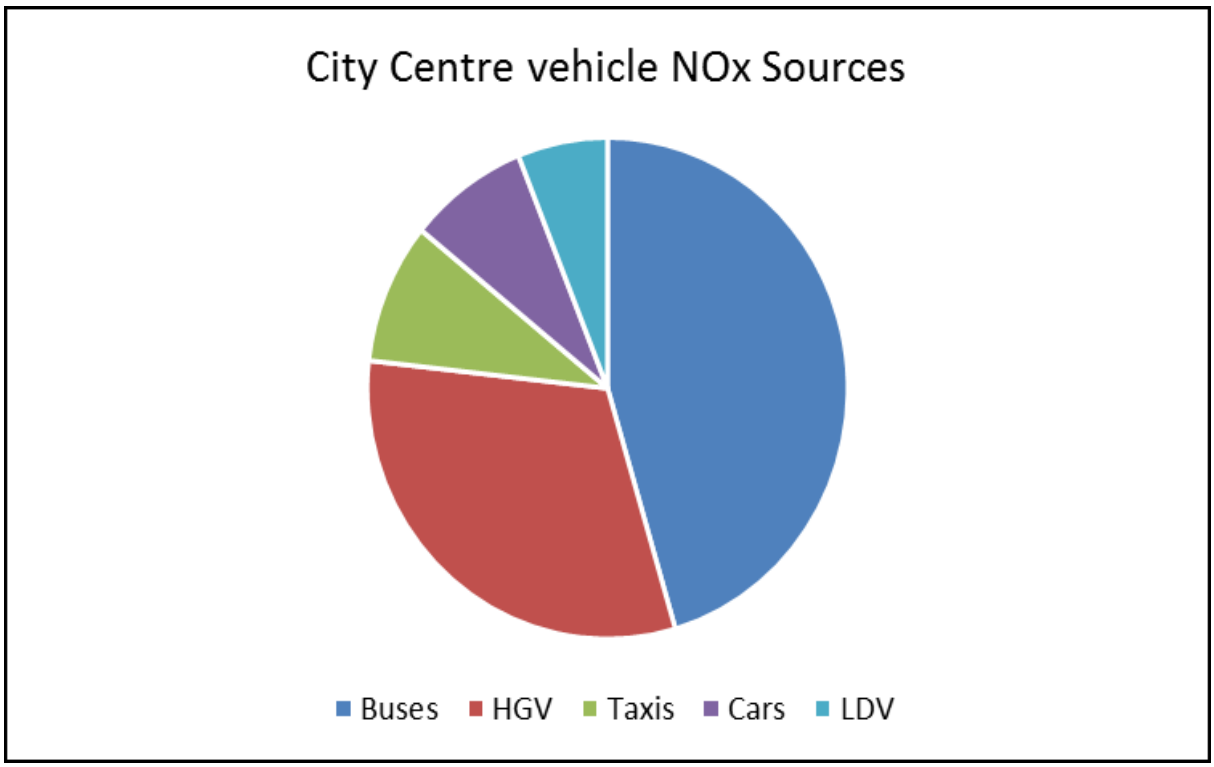


Figure Twelve Relative Vehicle contributions to NOx in Cambridge City Centre

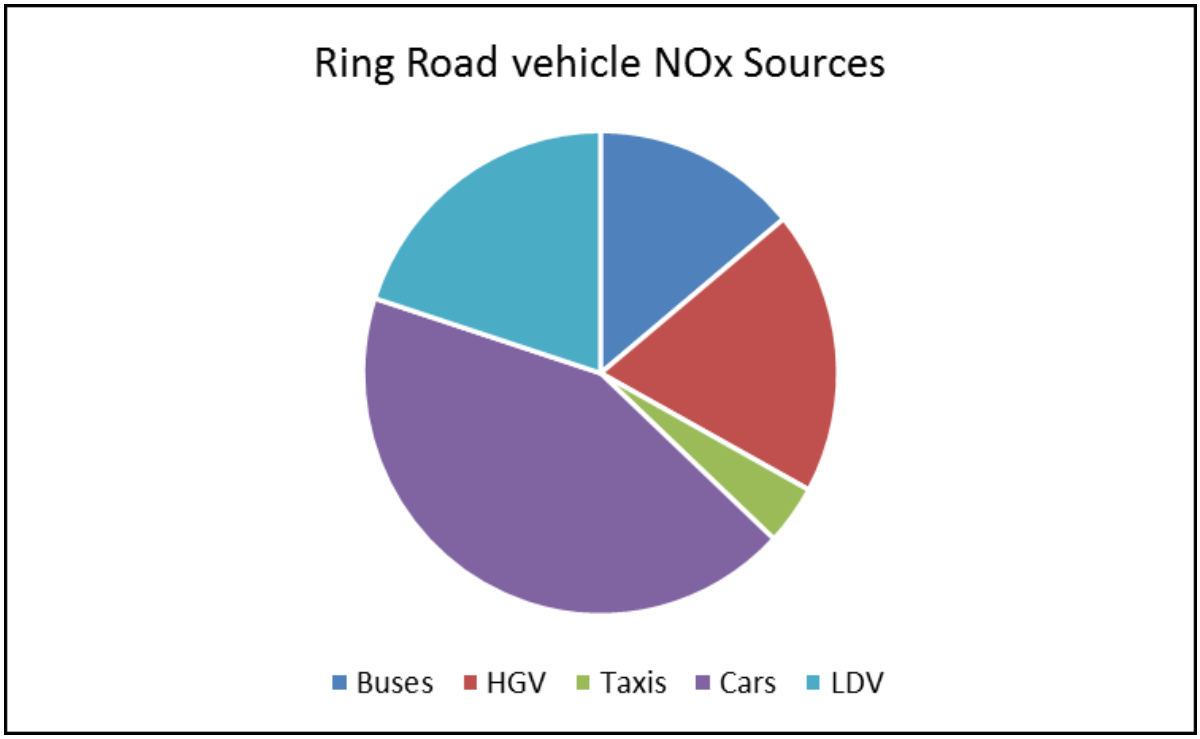


Figure Thirteen Relative Vehicle contributions to NOx on Cambridge Ring Road

Source apportionment of Particulates (including PM_{10} and $PM_{2.5}$)

Whilst the actions in the Air Quality Action Plan are targeted at reducing levels of nitrogen dioxide to below the legal limits, Cambridge City Council also recognises the importance of reducing levels of particulates, which are harmful to health at any concentration, as discussed above. Particulate levels are measured at four locations in Cambridge; they are currently all below the legal limits.

PM_{10}

Source apportionment using Defra Background maps[32] shows that most background PM_{10} has a regional component (90%), that is, it does not have a local source. However, there is a small traffic related component.

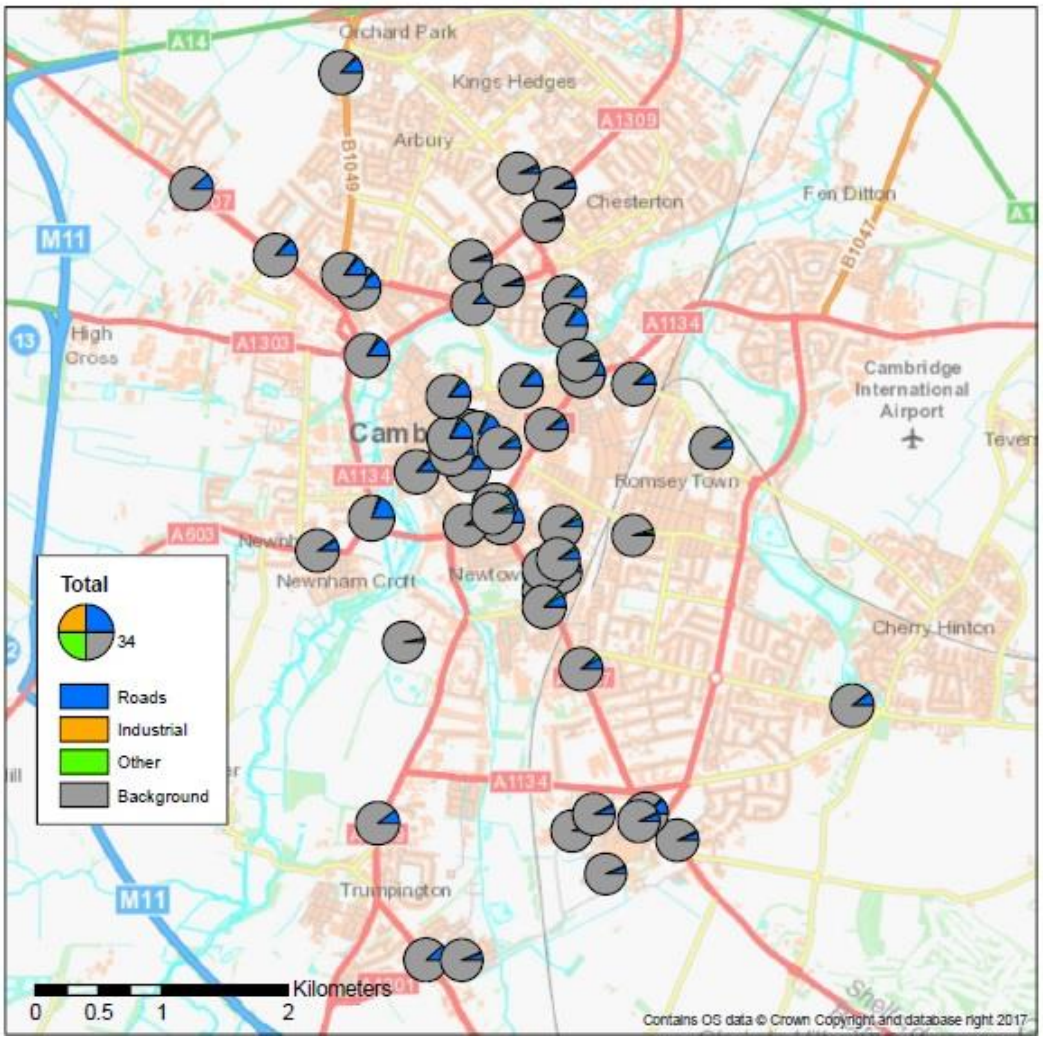


Figure Fourteen Source of PM by type (CERC, 2017)

[32] https://laqm.defra.gov.uk/review-and-assessment/tools/background-maps.html

The background estimates across Cambridge vary between 15 and 17 micrograms per cubic metre (2016), with an average of 16 micrograms per cubic metre.

PM_{10} is measured at three locations in Cambridge – Gonville Place, Montague Road (adjacent to Elizabeth Way) and Parker Street. These stations recorded 20 – 22 micrograms per cubic metre annual mean in 2016[33], demonstrating that around 25% of PM_{10} in Cambridge is locally derived.

The Source Apportionment study demonstrated that most of the additional PM_{10} in Cambridge results from traffic, with a component from demolition and construction dust.

$PM_{2.5}$

Source apportionment using the Defra Background maps shows that most background $PM_{2.5}$ has a regional component (95%). The background estimates across Cambridge vary between 11 and 12 micrograms per cubic metre (2016).

$PM_{2.5}$ is measured at two locations in Cambridge – Gonville Place and Newmarket Road. Recent measurements of $PM_{2.5}$ at Newmarket Road indicate that there is a very small roads component in this location (11 micrograms per cubic metre annual mean), but at Gonville Place there is an additional contribution of up to 3 micrograms per cubic metre $PM_{2.5}$[34] (15 micrograms per cubic metre annual mean). Most parts of Cambridge have 'background' levels of $PM_{2.5}$ but it appears likely that hotspots are present in locations of high traffic density.

<u>Particulate Matter specific measures</u>

We have considered setting targets for $PM_{2.5}$ reduction, although the potential to achieve significant reduction is limited by the high regional contribution. There are few measures that can be undertaken locally that will specifically reduce $PM_{2.5}$. These would need to be addressed by national and international measures.

[33] Annual Status Report, https://democracy.cambridge.gov.uk/ieListDocuments.aspx?CId=177&MId=2570&Ver=4
[34] Annual Status Report, https://democracy.cambridge.gov.uk/ieListDocuments.aspx?CId=177&MId=2570&Ver=4

The measures in this Action Plan that address the sources of nitrogen dioxide will also help to reduce particulate matter (PM_{10} and $PM_{2.5}$); they include:

- Ensuring that any increase in public transport provision is offset, at least, by improvements in tail-pipe emissions.
- Ensuring that the Public Health perspective is integrated into all transport/traffic policies and Greater Cambridge Partnership plans.
- Ensuring that the Public Health perspective is integrated into planning policies; for example, by developing planning policies in the next iteration of the Local Plan that require a Health Impact Assessment for proposed developments over a certain size. This will ensure that new developments have health considerations at the heart of the scheme and lead to healthier communities.
- Publicity campaigns to provide information about impacts of wood burning/what type of wood to burn and how to burn it efficiently.
- Publicity campaigns about traffic idling.

Cambridge already takes the following measures to address particulate matter levels:

- Demolition and construction dust is controlled by planning conditions requiring demolition and construction management plans.
- Where appropriate, require planning conditions to control non-road mobile machinery emissions.
- Smoke Control Areas cover the central part of Cambridge.
- Control of wood/coal burning from boats via licence/permit mooring agreements.
- Emission standards for low carbon technologies such as gas Combined Heat and Power (CHP) are sought through the use of planning conditions.

3.4 Required Reduction in Emissions

A reduction of Nitrous Oxide emissions of 2.5 µg/m^3, or 5.2% is required in Cambridge. This section explains what that means and how this figure has been calculated. Exhaust emissions are a mix of substances including the group nitrous oxides, a mix of nitrogen dioxide and nitric oxide (NO_2 and NO). NO can react with oxygen in the atmosphere to produce more NO_2. Nitrous oxides (NOx) define the emissions; nitrogen dioxide is the pollutant of concern. The National Air Quality Objective that Cambridge City Council is legally required to work towards is 40 micrograms Nitrogen Dioxide (NO_2) per cubic metre. Nitrogen dioxide is the specific pollutant that causes harm to human health.

The required reduction in emissions has been calculated in line with Technical Guidance LAQM.TG16[35] Chapter 7 (Box 7.6), using an Excel spreadsheet. It is based on the required reduction in the road NOx concentration at the worst-case relevant exposure location. Details are provided in Appendix C.

The worst-case relevant exposure location in 2016 is 41µg/m^3 (Parker Street). The legally required reduction in the level of nitrogen dioxide is 1 microgram per cubic metre annual mean, from 41 micrograms per cubic metre (Parker Street) to 40 micrograms per cubic metre. From the spreadsheet, the recorded level of nitrogen dioxide in Parker Street equates to a roads NOx concentration of 47.9 micrograms per cubic metre and a reduction in road NOx emissions to 45.4 micrograms per cubic metre is required to bring the nitrogen dioxide level to 40 micrograms per cubic metre or less. Thus an emissions reduction of 2.5 µg/m^3, 5.2% is required.

However, reducing emissions is only the first strand of the Air Quality Action Plan. The second strand is to ensure that emissions remain at levels below the National Air Quality Objectives (Section 3.2 Planning and Policy) and the third is improve public health by taking action to keep air pollution levels as low as they can possibly be (Section 3.1 Public Health Context).

[35] https://laqm.defra.gov.uk/technical-guidance/

3.5 Key Priorities

The priorities for Cambridge City Council are to reduce emissions so that concentrations of nitrogen dioxide are below the National Air Quality Objective, the second is to ensure that concentrations of nitrogen dioxide remain at levels below the National Air Quality Objectives; the third is to improve public health by taking action to keep air pollution levels as low as they can possibly be.

- Priority 1 – Reduce emissions in the central areas of Cambridge

The source apportionment shows that traffic emissions are the main source of air pollution in the city, with major contributions from buses and HGVs in the historic city centre and from cars elsewhere. Only a small reduction in emissions is required to meet the National Air Quality Objectives. Completion of the measures in this Plan is expected to ensure that these Objectives are met by the earliest possible date.

- Priority 2 – Reduce emissions across Cambridge

However, the planned growth in population and economic activity in the Greater Cambridge area could threaten the success of an Air Quality Action Plan just considering short term objectives, so this Plan will develop medium-term and long-term strategies and actions to ensure that air quality is considered for the future.

The evolving work currently being carried out by the GCP to tackle congestion in Cambridge will be key to the immediate, medium and long term success of the Air Quality Action Plan. Realisation of the measures being developed is expected to reduce the level of emissions from traffic in general, and from public transport in particular.

- Priority 3 – Keep emissions low in the future

Keeping emissions low, and reducing them further in the future will require ongoing involvement with development and delivery of relevant transport and planning policies, strategies and plans.

The Air Quality Action Plan measures to address the three priority areas have been grouped into seven main themes; these are detailed below.

4 AQAP Measures

The full set of Cambridge City Council AQAP measures (as defined by Defra) is listed in Table 4.1. The most useful measures that will contribute towards reducing air pollution in the shortest possible time have been grouped into thematic sets of measures which relate to the three priorities described above.

Priority 1 - Reducing Emissions in central areas of Cambridge

The source apportionment indicates that road traffic emissions are the main source of NOx, with buses and HGVs dominant in the city centre, and cars dominant on the inner ring road. Therefore, the most important key actions in relation to this priority are to reduce emissions from traffic; buses and HGV in particular. A significantly lower emission passenger transport fleet will be required to make air quality improvements in central Cambridge and beyond.

There are three main themes for Priority 1; they are reducing emissions from taxis, reducing emissions from buses and coaches, and reducing emissions from HGVs.

Theme 1 – Reduce emissions from Taxis

Measures

46 "Clean Air Zone"

48 Installation of Taxi-only Rapid Charge Points

55 Licensing conditions to require Low Emission Taxis

54 Fee Reduction for Low Emission Taxis

Target – 30% electric or petrol hybrid taxi fleet in Cambridge by 2023 (100% electric or petrol hybrid taxi fleet in Cambridge by 2028).

Cost - £626,000 for Taxi-only Rapid Charge Points, of which £426,000 has been allocated from the Office for Low Emission Vehicles (OLEV), £100,000 has been allocated from Cambridge City Council funds and £100,000 from the Greater Cambridge Partnership. A further £140,245 has been agreed in principle and is expected to be committed (in the February 2018) for fee reductions over 5 years to incentivise low and ultra-low emission taxi uptake.

Benefit – 20 – 30% reduction in emissions from taxis; 1.5 – 4.5% reduction in NOx

emissions from taxis.

A Feasibility Study undertaken by EST to inform the bid application to OLEV calculated that the installation of 18 Rapid Charge Points and 3 Fast Charge Points would reduce emissions of NOX and PM from Hackney Carriage Vehicles and Private Hire Vehicles by 20 – 30%. This assumes uptake of 67 Hackney Carriage Vehicles and 50 Private Hire Vehicles.

The fee reductions for low emission taxis (check this is detailed somewhere) will cost up to £140,245. This will stimulate the continuing transition to low emission taxis including hybrids and result in further emissions reductions.

Cambridge City Council taxi licensing policy was revised in 2016; the updated policy was agreed in principle by the Licensing Committee in October 2016. The new policy subject to being agreed in March 2018 will offer fee discounts or exemptions for low emission taxis and consider extending the age limit. Dates will be set for newly registered taxis to be low or ultra-low emission.

Any "Clean Air Zone" type of arrangement will act as a further driver for uptake of lower emission vehicles. This project is subject to a feasibility study.

A 30% reduction in NOx emissions from taxis, which are 5 – 15% of the source of emissions in the city centre (Table 1.2) would lead to 1.5 – 4.5% reduction in NOx emissions in central Cambridge, a significant proportion of the 5% required reduction.

Timescale – The first rapid charge points will be in place by the end of the financial year 2017/18. The OLEV funded project runs for 3 years until 2019/20.

Responsibility – These projects will be undertaken by Cambridge City Council and GCP, with input from all partners.

Monitoring progress – Annual uptake targets have been set by OLEV and quarterly reporting is required. Progress will also be reported in the Annual Status Reports as well as to any relevant council Committees.

Theme 2 – Reduce emissions from Buses and Coaches

Measures

02 Quality Bus Partnerships

46 "Clean Air Zone"

56 Lowering emissions from buses and coaches

Target – 100% current regular bus and coach fleet in Cambridge Euro VI or better; all additional buses/coaches to be zero-emission capable.

Cost - TBC

Benefit – 75% reduction in NOx from buses and coaches; 33% reduction of total emissions in the central part of Cambridge.

Timescale –Year 4 onwards of the Air Quality Action Plan.

Responsibility – These projects will be progressed by Cambridgeshire County Council and GCP, with input from all partners. Bus and coach fleet renewals are without the control of the County Council and the GCP (but they may be a route to access funding).

Monitoring progress – Progress will also be reported in the Annual Status Reports.

Notes

An "Emissions Envelope" method of calculation has already been established and used to inform the Cambridge Bus Emissions Reduction Commitment. This method is used here to establish the reduction in emissions from buses and coaches that could be expected if all of the regular fleet were Euro VI. The current contribution to NOx emissions in the Core Area from the bus and coach fleet is 135 kg/week NOx. If all of the Euro V and Euro IV vehicles were replaced with Euro VI, then NOx emissions from the bus and coach fleet would be 35 kg/week, approximately a 75% reduction. Table 1.2 shows that buses contribute 45% of the NOx emissions in the city centre, so a reduction of 33% of total emissions could be achieved in the city centre and 15% reduction in NOx emissions on the ring road.

The continuing improvement of the bus fleet remains the most effective way of reducing emissions and improving air quality in Cambridge.

Notes: We continue to engage with local bus operators through the Quality Bus Partnership (QBP) who made significant fleet investment in 2016. In January 2017 34% of bus journeys kilometres in the Core Area were made with Euro VI, 63% Euro V and only Euro IV (3%). Benefits expected from these improvements in the fleet have not yet been observed in lower air pollution levels in the bus station area; this may be in part because we had under-estimated the volume of HGVs passing through the restricted access Core Area, possibly related to early morning, evening and night-time deliveries.

A replacement Quality Bus Partnership will be required to encourage operators to continue to make fleet improvements. The QBP agreement could also extend the 'Switch Off' policy for Drummer Street to Emmanuel Street and St Andrew's Street to reduce exposure in these locations.

Testing of heavy vehicles with Euro VI engines demonstrate lower emissions of nitrogen oxides (NOx) and exhaust particles (PM) for all types of test cycles, more than 90% lower compared with the emissions from previous, Euro V generations[36].

There are two current options to improve emissions from buses:

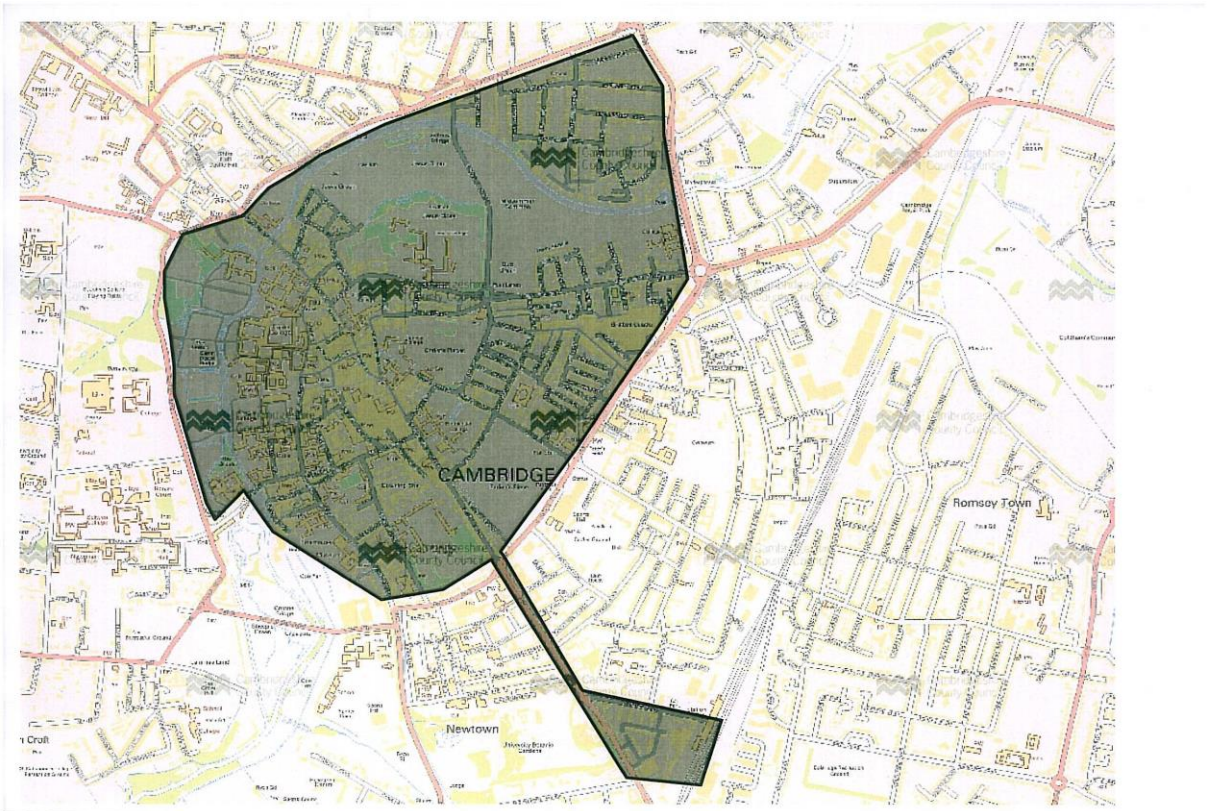
- Buses can be retrofitted with emission technology – accreditation support is provided by the Clean Vehicle Retrofit Accreditation Scheme (CVRAS) which will enable the existing buses to be fitted with proven emission control solutions.
- The Greater Cambridge Partnership City Access Study project has Better Bus Services as one of its measures. This Work Package includes an electric bus fleet options feasibility study and potentially a pilot study.

Emissions reductions will be costed and assessed as project clarity is developed.

The Greater Cambridge Partnership is also considering plans for partial electrification of the fleet/permitting new services to be electric only. These plans are under discussion and would be in place towards the end of this Air Quality Action Plan.

Any additional bus services will require a separate QBP agreement, which would cover air pollution/emissions reduction.

Map of extended Core Area



[36] https://www.toi.no/getfile.php/Publikasjoner/T%C3%98I%20rapporter/2015/1407-2015/1407-2015-sum.pdf

Theme 3 - Reduce emissions from HGVs

Measures

46 11 "Clean Air Zone"/access restrictions

17 18 Last Mile/click and collect

19 Unified consolidation centres

22 Cycle deliveries

Target – TBC

Cost - TBC

Benefit – We do not know the composition of the current HGV fleet that drives through Cambridge, so we have made some assumptions to provide an estimate. The benefit has been estimated by assuming that all current HGVs are Euro V and that with the introduction of a "Clean Air Zone", all would have to be Euro VI, leading to a 90% reduction in emissions (see above). This assumes that there are no Euro VI currently in the fleet – all are Euro IV or lower. From Table 1.2, HGVs are the source of 15 – 60%, so a reduction 13.5% to 54% total NOx emissions could be expected in central Cambridge.

Although, the assumptions made for this estimate are very broad, it is clear that an improvement in the HGV fleet would have a significant impact on emissions in central Cambridge.

The calculations will be revisited when the data from the ANPR study becomes available for analysis. The assumptions will be retested when the form of any "Clean Air Zone" is proposed.

A shift from high emission vehicles to low or zero emission vehicles will also assist in reducing emissions.

Timescale - A "Clean Air Zone" is anticipated to be implemented from Year Three (2020) of this Plan.

Responsibility – These projects will be undertaken by the GCP, with input from all partners.

Monitoring progress - Progress will be reported in the Annual Status Reports.

Notes Greater Cambridge Partnership are actively looking at solutions to reduce the volume of freight deliveries in Cambridge and will seek collaboration with the business community. Important actions that are being evaluated for further investigation include the building of a strong evidence base, gaining understanding of how to incentivise cycle deliveries in the city, looking at P&R sites for Unified Consolidation Centre, Click &Collect opportunities, and working with large employment areas to support collaborative freight consolidation.

Priority 2 - Reducing Emissions across Cambridge

The source apportionment indicates that roads (traffic emissions) are the main source of NOx, with cars dominant on the ring road. There is one main action for Priority 2; reducing emissions from all traffic.

Theme 4 - Reduce emissions from all traffic/other traffic

Measures

49 51 Installation of EV charge points for Residents

50 51 Installation of EV Charge Points for Non-residents

46 "Clean Air Zone"

Target – Install 6 EV charge points in residential areas in year one (2018), depending upon funding on:

Cost - TBC

Benefit - TBC

Timescale – 2018 onwards

Responsibility – These projects will be undertaken by Cambridgeshire County Council and GCP, with input from all partners.

Monitoring progress - Progress will be reported in the Annual Status Reports.

Notes

A range of measures are proposed to reduce traffic, and thus traffic emissions (that are potentially quantifiable) including:

- "Clean Air Zone" – potentially permitting access to low emission vehicles only. The Greater Cambridge Partnership is undertaking a feasibility study. Data from the ANPR survey will be used to determine the 2017 baseline, then potential options with and without a range of restrictions. (There is a standard traffic mix that could be used as alternative for baseline.)
- Traffic management measures to manage city centre access – potential Core Area extension, with consideration of vehicle displacement.
- Reduce city centre parking, with consideration of provision of alternative modes of access.

Other measures to reduce traffic emissions (that are not potentially quantifiable) are alternatives to private vehicles (such as car clubs), increased use of P&R, Freight and Delivery Management, promoting low emission transport, promoting travel alternatives, public information, traffic management, transport planning and infrastructure. These are all important contributors to the modal shift required to reduce traffic and air pollution in Cambridge; they are included in the list in Table 4.1.

Priority 3 - Keeping Emissions Low in the Future

These measures are not quantifiable, so a qualitative analysis has been undertaken. There are three main sets of measures; they come under the heading of planning policies, improving public health and leading by example.

Theme 5 - Maintaining Low Emissions

Measures

23 Air Quality Policy in Local Plan

24 Air Quality Policy in Joint Local Plan

26 Supplementary Planning Document on air quality and development control

27 28 33 34 35 36 Development of new Air Quality/Planning policies for the Air Quality Action Plan

30 Develop policies in next Local Plan to require Health Impact Assessments (HIA) at Pre-application Stage

Target – Completion and agreement of policies and relevant supporting documents

Cost – not quantifiable

Benefit – not quantifiable

Timescale – 2018 onwards

Responsibility – These projects will be undertaken by Cambridge City Council Environmental Health and Planning officers.

Monitoring progress – will be reported annually in the ASR

Notes

Air Quality and other planning polices in the current Local Plan will continue to ensure that developments coming forwards are assessed for air quality impact and that mitigation is in place.

New policies will be adopted as new mitigation measures come forwards.

Future Local Plans will establish the Planning Policy framework for the good design of future development in the local area. Effective spatial planning will ensure that new communities in Greater Cambridge are well-designed to minimise the need or desire to travel. A clear understanding of excellent design principles will lead to people-focussed place-making and a high-quality, healthy environment. For example, requiring HIA at the pre-application phase for major developments will

ensure that health-based principles are enshrined at an early stage in the design of a development – better by design. The role of the forthcoming Joint Local Plan in improving air quality/public health is subject to ongoing discussions with the planning policy team and this will continue into the future.

Theme 6 - Improving Public Heath

Measures

30 Develop policies in next Local Plan to require Health Impact Assessments (HIA) at Pre-application Stage

31 Continuing input into the Joint Strategic Needs Assessment (and any other strategies that come forwards)

58 Active Travel Infra-structure via GCP measures

76 Developing messaging about air quality for information campaigns

Target – Develop a series of articles for each Cambridge Matters edition about public health impacts of air quality

Cost – not quantifiable

Benefit – not quantifiable

Timescale – 2018 onwards

Responsibility – These projects will be undertaken by Cambridge City Council Environmental Health and Cambridgeshire County Council Public Health officers, with input from other relevant officers where required.

Monitoring progress – will be reported annually in the ASR

Notes

Public Health is the driver for air quality improvements. The Public Health role has several strands, with some specific actions, as well as an advisory role in development of plans and strategies.

The first measure will be to prepare a distillation of the extensive evidence base about the impacts of air pollution on public health and present this in an easy to use format. We will then use this information to develop a communications strategy with our communications teams, both for the general public and for local authority officers and decision-makers, to improve understanding of the importance of making changes to improve public health.

Particular emphasis will be made on encouraging a modal shift to active travel which has health benefits as well as reducing the impact of motorised traffic.

Theme 7 - Leading by Example

Measures

60 Travel Plan

53 Reducing emissions from own fleet

Target – increase number of staff not driving to/from work, increase number cycling to work, choosing healthy commuting options

Cost – not quantifiable

Benefit – not quantifiable

Timescale – 2018 onwards

Responsibility – These projects will be undertaken by Cambridge City Council officers.

Monitoring progress – will be reported annually in the ASR

Notes

Cambridge City Council recognises the importance of leading by example; the following measures are already in place and/or ongoing.

Travel Plan

The Cambridge City Council Travel Plan was updated in 2017. This package of measures aims to enable sustainable travel choices to be made, benefitting both the environment (less congestion, fewer emissions to air) and the health and fitness of the workforce. Measures include:

- Targets to increase number of staff not driving to/from work, increase number cycling to work, choosing healthy commuting options
- Public transport discounts
- Provision of pool bikes, including e-bikes
- Provision of pool car/car club membership for occasional travel for work
- Bicycle training
- Annual cycle purchase scheme
- Secure and covered cycle parking, wherever possible
- Annual Travel for Work surveys
- Assistance with travel planning to relocated workplaces

The Travel Plan also includes measures to enabling remote working/agile working

(that is, to avoid unnecessary travel). This is an increasingly important strand of this work because the rising housing costs in Cambridge have resulted in more and more employees travelling further to their workplace location. The ability to work from home is a valuable employee benefit for many staff, saving time and commuting costs. Measures include:

- Ability to work from home, where appropriate
- Technological support for remote working
- Provision of technology for agile working

Lowering Emissions from our own Fleet

Cambridge City Council has historically invested in low emission vehicles. Later vehicles have proven to be more reliable, as well as being ultra-low emission and cost-effective to run and maintain. Around 10% of the fleet, the smaller vehicles, are EV, including the Mayor's car. The Fleet Management Team continues to assess the requirements for vehicular travel and look for low emission transport alternatives wherever practical and realistically priced.

Table 4.1 shows the Cambridge City Council AQAP measures. It contains:

- a list of the actions that form part of the plan
- the responsible departments/organisations that will deliver this action
- expected benefit in terms of pollutant emission and/or concentration reduction, where applicable
- the timescale for implementation

The list is arranged in alphabetical order of EU Measure Category in Column Three, with sub-lists of EU Measure Classification in Column 4, for Defra's reporting purposes. Each EU category has a different background shade to aid inspection of the list. The key measures are highlighted in bold. The specific measures are in Column Two.

Note that not all measures are applicable for Cambridge, and measures will vary in their impact. They are all included for transparency and to demonstrate the breadth of activities across the councils that will help to improve air quality.

The Annual Status Reports will provide updates on implementation of these measures.

Table 4.1 – Air Quality Action Plan Measures (n/a = not applicable)

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	Expansion of Park & Ride services	**Alternatives to private vehicle use**	**Bus based Park & Ride**	**Camb. County Council/ Greater Cambridge Partnership**	**Ongoing**	**Ongoing**	**TBC**	**n/a**	**5 P&R sites**	**Ongoing**	**More P&R due under Greater Cambridge Partnership arrangements (see text).**
2	**Quality Bus Partner-ships**	**Alternatives to private vehicle use**	**Other**	**Camb. County Council/ Camb City Council/ Greater Cambridge Partnership**	**Ongoing**	**Ongoing**	**QBP agreement for current services and QBP agreements for all new services**	**No additional pollution**	**QBP agreement for current services pending; QBP agreements for new services accepted in principle**	**Ongoing**	**-**
3	Camshare is one strand of the Travel for Cambridge-shire scheme	Alternatives to private vehicle use	Car and lift sharing schemes	TfC, Camb. County Council	In place	In place	n/a	n/a	5,000 members	Ongoing	http://www.travelcambs.org.uk/car-share/
4	Provision of car park places for car club vehicles	Alternatives to private vehicle use	Car Clubs	Parking Services, Camb. City Council	In place	In place	n/a	n/a	16 cars and 1 van in Zipcar club across Cambridge	Ongoing	More spaces will be available, subject to demand from car club providers. Car clubs are commercially viable

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	Provision of on-street car parking places for car club vehicles	Alternatives to private vehicle use	Car Clubs	Infrastructure Team, Camb. County Council	In place	In place	n/a	n/a	16 cars and 1 van in Zipcar club across Cambridge	Ongoing	More spaces to be available, subject to demand from car club providers. Car clubs are commercially viable.
6	Require car clubs in new develop-ments via planning policy/ planning condition/ S106 agreements	Alternatives to private vehicle use	Car Clubs	Environ-mental Health/ Planning Camb. City Council/ district councils	n/a	Ongoing	n/a	n/a	Not recorded.	Ongoing	Forward-thinking developers are already setting aside car club spaces.
7	Require 1 car club vehicle per 100 parking spaces in new residential develop-ment, 1 vehicle per 5,000 m2 in non-residential develop-ments	Alternatives to private vehicle use	Car Clubs	Environ-mental Health/ Planning Camb. City Council/ district councils	n/a	Ongoing	n/a	n/a	Not recorded.	Ongoing	Forward-thinking developers are already setting aside car club spaces. Require where appropriate to mitigate air quality impact.

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
8	Promotion of electric bike hire/hub schemes	Alternatives to private vehicle use	Other	Environ-mental Health/ Planning Camb. City Council/ district councils GCP	-	-	n/a	n/a	-	-	Nothing in place at the moment.
9	Develop policies to require electric bike charge hubs and parking in new residential areas without off street parking	Alternatives to private vehicle use	Other	Environ-mental Health and Planning, Camb. City Council/ district councils	-	-	n/a	n/a	-	-	Nothing in place at the moment. Will need to complement existing cycle parking requirements and space implications. Will need to consider if access is open or restricted.
10	Develop policies to promote electric bike charge facilities in workplaces and car parks/ require in new workplaces	Alternatives to private vehicle use	Other	Environ-mental Health and Planning, Camb. City Council/ district councils	-	-	n/a	n/a	-	-	Nothing in place at the moment. Will need to complement existing cycle parking requirements and space implications. Will need to consider if access is open or restricted.

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
11	No measure proposed	Environmental Permits	Introduction/ increase of environ-mental charges through permit systems and economic instruments	Camb. City Council	-	-	-	-	-	-	Not applicable in Cambridge. These charges are fixed by Defra.
12	No measure proposed	Environmental Permits	Introduction/ increase of environ-mental funding through permit systems and economic instruments	Camb. City Council	-	-	-	-	-	-	Not applicable in Cambridge These charges are fixed by Defra.
13	No measure proposed	Environmental Permits	Large Combustion Plant Permits and National Plans going beyond BAT	Camb. City Council	-	-	-	-	-	-	Not applicable in Cambridge
14	No measure proposed	Environmental Permits	Measures to reduce pollution through IPPC permits going beyond BAT	Camb. City Council	-	-	-	-	-	-	Not applicable in Cambridge

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
15	Tighter Emission Limit Values for Medium Combus-tion Plant located in AQMA	Environ mental Permits	Other measures through permit systems and economic instruments	Environ-mental Health, Camb. City Council	under discussion	-	-	-	-	-	Where applicable
16	No measure proposed	Environ mental Permits	Tradeable permit system through permit systems and economic instruments	Camb. City Council	-	-	-	-	-	-	Not applicable in Cambridge

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
17	**Last Mile delivery based from P&R sites**	**Freight and Delivery Manage-ment**	**Delivery and service plans**	**GCP/ Camb. County Council**	**Under discus-sion**	**-**	**-**	**-**	**-**	**-**	**Last Mile deliveries using electric car/taxi and/or bikes**
18	**Click and Collect hubs at P&R sites**	**Freight and Delivery Manage-ment**	**Freight Consolidation Centre**	**GCP/ Camb. County Council**	**Under discus-sion**	**-**	**-**	**-**	**-**	**-**	**Useful for commuters**
19	**Unified Consolida-tion Centres**	**Freight and Delivery Manage-ment**	**Freight partnerships for city centre deliveries**	**GCP/ Camb. County Council**	**Under discus-sion**	**-**	**-**	**-**	**Under discus-sion**	**-**	**Initial phase**
20	**City Centre restric-tions**	**Freight and Delivery Manage-ment**	**Quiet and Out of Hours delivery**	**Camb. County Council**	**In place**	**In place**	**n/a**	**n/a**	**Complete**	**Ongoing**	**HGV not permitted in Cambridge Core Area 10 - 4**
21	No measure proposed	Freight and Delivery Manage-ment	Route Management Plans	Camb. County Council	-	**-**	**-**	**-**	**-**	**-**	Nothing in place at the moment
22	**Cycle Delivery services**	**Freight and Delivery Manage-ment**	**Other**	**Camb. County Council**	**In place**	**In place**	**n/a**	**n/a**	**Complete** **GCP consider-ing further incentives for cycle deliveries**	**Ongoing**	**Outspoken Delivery (Cambridge) use specialist cargo-bikes and Electric vehicles. Deliveroo use cycle deliveries for home-delivery of take-away food. These services are commercially viable.**

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
23	**Air Quality Policy in Joint Local Plan**	**Policy Guidance and Develop-ment Control**	Regional planning – Area-wide strategies	**Environ-mental Health/ Planning Joint team City/SCDC**	**Ideas consider-ed during 2019**	**Implementation start upon Local Plan adoption**	**Air Quality policies in joint Local Plan**	**n/a**	**Discus-sion phase**	**TBC**	**A joint Plan will be prepared following merger of planning teams, and policies will be aligned. See text.**
24	**Air Quality Policy in Local Plan**	**Policy Guidance and Developm ent Control**	**Other Policy**	**Environ-mental Health/ Planning Camb. City Council**	**Complete**	**Implementa-tion starts upon Local Plan adoption**	**n/a**	**n/a**	**Local Plans currently being examined**	**Ongoing from adoption of Local Plan**	**City and SCDC have separate Local Plans with Planning Inspector.**
25	Adopt/ revise	Policy Guidance and Develop-ment Control	Low Emissions Strategy	Environ-mental Health/ Planning Joint team City/SCDC	2018	2020	Completion of new LES	-	In discussion	TBC	SCDC have a Low Emissions Strategy in place. City Council could adopt similar LES or work with SCDC on joint guidance. May be complemented by 'Clean Air Zone'
26	**Supple-mentary Planning Document s**	**Policy Guidance and Develop-ment Control**	**Air quality Planning and Policy Guidance**	**Environ-mental Health/ Planning Joint team City/SCDC**	**2017**	**2018 onwards**	**Input into production of Sustainable Construction and Development SPD**	**n/a**	**In prepara-tion**	**2018**	**Update of the 2007 Sustainable Design and Construction SPD to provide guidance for policies contained in the emerging Local Plan**
27	**Air Quality and Planning guidance document**	**Policy Guidance and Develop-ment Control**	**Air quality Planning and Policy Guidance**	**Environ-mental Health/ Planning Joint team City/SCDC**	**2018**	**2018 onwards**	**Update of Air Quality in Cambridge: Developers Guide**	**n/a**	**Not yet started**	**2019**	**To provide clarity for developers. To be updated as required.**

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
28	**Develop guidance based on Defra cost-benefit approach to mitigation**	**Policy Guidance and Develop-ment Control**	**Air quality Planning and Policy Guidance**	**Environ-mental Health/ Planning Joint team City/SCDC**	**2017**	**2018 onwards**	**Production of new guidance to support Policy 36**	**n/a**	**Under discussio n**	**2019**	**To provide a clear and simple procedure to ensure that all new developments are adequately mitigated.**
29	Sustain-able Procure-ment Guidance.	Policy Guidance and Develop-ment Control	Sustainable Procurement Guidance	District councils City/SCDC	In place	In place	n/a	n/a	Complete	Ongoing	Cambs City procurement team have produced a guide for employees "Buying Green in Cambridge City Council", which covers sustainable issues.
30	**Develop policies to require Health Impact Assess ments (HIA) at Pre-applica-tion stage**	**Policy Guidance and Develop-ment Control**	**Other**	**Planning and Public Health Districts/ Camb. County Council**	**In discus sion**	**For the joint Local Plan/future planning policy**	**-**	**-**	**-**	**TBC**	**To ensure that Healthy Communities are part of the design, not an optional add-on**

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
31	**Air Quality input into Joint Strategic Needs Assess-ments for Transport and for Built Environ-ment**	**Policy Guidance and Develop-ment Control**	**Other**	**Public Health/Environmental Health** **Districts/ Camb. County Council**	**In discus-sion**	**Ongoing**	**-**	**-**	**-**	**Ongoing**	**To ensure that Healthy Community strategies are embedded into the JSNA.**
32	Public Health to be consulted on prepara-tion of SPDs	Policy Guidance and Develop-ment Control	Other	Districts/ Camb. County Council	In discussion	For the joint Local Plan	-	-	In place	Ongoing	To ensure that positive health policies are enshrined in SPDs
33	**Require one slow EV Charge Point for each dwelling with allocated parking (100% coverage)**	**Policy Guidance and Develop-ment Control**	**Other**	**Environ-mental Health/ Planning**	**In progress**	**Upon adoption of AQAP**	**-**	**n/a**	**Forward-thinking developers are already installing EV charge points.**	**n/a**	**In line with NPPF, IAQM guidance and to be incorporated into building regulations.** **Recommended /require where appropriate to mitigate air quality impact**

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
34	**Require one slow EV Charge Point for two dwelling with comm-unal parking (50% coverage)**	**Policy Guidance and Develop-ment Control**	**Other**	**Environ-mental Health/ Planning**	**In progress**	**Upon adoption of AQAP**	**-**	**n/a**	**Forward-thinking developers are already installing EV charge points.**	**n/a**	**In line with NPPF principle and IAQM guidance Recommended/ require where appropriate to mitigate air quality impact**
35	**Require one fast EV Charge Point for 1,000m^2 non-residen-tial floor space**	**Policy Guidance and Develop-ment Control**	**Other**	**Environ-mental Health/ Planning**	**In progress**	**Upon adoption of AQAP**	**-**	**n/a**	**Forward-thinking developers are already installing EV charge points.**	**n/a**	**In line with NPPF principle and IAQM guidance Recommended/ require where appropriate to mitigate air quality impact**
36	**Require one rapid EV Charge Point for 1,000m^2 non-residen-tial floor space**	**Policy Guidance and Develop-ment Control**	**Other**	**Environ-mental Health/ Planning**	**In progress**	**Upon adoption of AQAP**	**-**	**n/a**	**Forward-thinking developers are already installing EV charge points.**	**n/a**	**In line with NPPF principle and IAQM guidance Recommended/ require where appropriate to mitigate air quality impact**

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
37	CHP emission standards	Promoting Low Emission Plant	Emission control equipment for small and medium stationary combustion plant	District Councils – shared planning policy team	In discussion	Upon adoption of AQAP	n/a	n/a	Informally in place as and when required for mitigation, via planning condiiton	2018	All gas CHP to meet low emissions standards, Spark ignition engine: less than 150 mgNOx/Nm3 Compression ignition engine: less than 400 mgNOx/Nm3 Gas turbine: less than 50 mgNOx/Nm3
38	Low NOx boilers	Promoting Low Emission Plant	Emission control equipment for small and medium stationary combustion plant	District Councils – shared planning policy team	In discussion	Upon adoption of AQAP	n/a	n/a	Informally in place as and when required for mitigation, via planning condition	2018	All developments to have low NOx boilers, defined as boilers that meet a dry NOx emission rating of 40mg/kWh.
39	No measure proposed	Promoting Low Emission Plant	Low emission fuels for stationary and mobile sources in public procurement	-	-	-	-	-	-	-	Nothing in place at the moment
40	No measure proposed	Promoting Low Emission Plant	Other measures for low emission fuels for stationary and mobile sources	-	-	-	-	-	-	-	Nothing in place at the moment

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
41	No measure proposed	Promoting Low Emission Plant	Public Procurement of stationary combustion sources	-	-	-	-	-	-	-	Nothing in place at the moment
42	Extension of Smoke Control Area	Promoting Low Emission Plant	Regulations for fuel quality for low emission fuels for stationary and mobile sources	Camb City Council	Not at present	-	-	-	-	-	Not being considered - high cost and workload, for minimal impact See also Public Information
43	Restriction on fuel types used on dwellings moored on river	Promoting Low Emission Plant	Regulations for fuel quality for low emission fuels for stationary and mobile sources	Camb City Council	Not at present	-	-	-	-	-	Not being considered - regulations already in place to cover fuel use and smoke nuisance See also Public Information
44	No measure proposed	Promoting Low Emission Plant	Shift to installations using low emission fuels for stationary and mobile sources	-	-	-	-	-	-	-	Nothing in place at the moment

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
45	No measure proposed	Promoting low emission transport	Company vehicle procurement	-	-	-	-	-	-	-	Councils unable to directly influence private business but can use access policies to incentivise change.
46	**"Clean Air Zone"**	**Promoting low emission transport**	**Low Emission Zone**	**Camb City Council/ Camb County Council/ Greater Cambridge Partnership**	**In discus-sion phase**	**Following consultation and agreement on final area and permissions to enter.**	**CAZ in place**	**TBC**	**Feasilibity study in progress**	**2019**	**See text**
47	LEV discount offered as part of policy for residents parking permits	Promoting low emission transport	LEV priority parking	Cambs County Council	At committee stage	2018	Discount offered on residents parking permits to Low Emission Vehicles	n/a	Consulta-tion in progress	2019	-
48	**Installa-tion of Rapid and Fast EV charge points for taxis**	**Promoting low emission transport**	**Alternative refuelling infrastructure**	**Camb City Council/ South Cambs DC/ Camb County Council/ Greater Cambridge Partnership**	**2017**	**2018**	**Installation of 18 Rapid and 3 Fast EV chargepoints in Cambridge and South Cambridge-shire**	**1.5 – 4.5% reduction in NOx emissions**	**TBC First phase plans under way**	**2020**	**Funding from OLEV, Greater Cambridge Partnership, Cambridge City Council**
49	**Installa-tion of EV charge points for residents**	**Promoting low emission transport**	**Alternative refuelling infrastructure**	**Camb City Council/ Camb County Council/ Greater Cambridge Partnership**	**2017**	**2018**	**Installation of 6 EV chargepoints in residential parking zones**	n/a	**Funding bid about to be submitted**	**2018**	**Will depend if funding bid is successful from OLEV**

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
50	**Installation of EV charge points for non-residents**	**Promoting low emission transport**	**Alternative refuelling infrastructure**	**Camb City Council/ Camb County Council/ Greater Cambridge Partnership**	**-**	**-**	n/a	n/a	**-**	**-**	**Some EV already in car parks Would require additional staff and funding to initiate new projects**
51	**Installation of EV charge points on lamposts, for residents and non-residents**	**Promoting low emission transport**	**Alternative refuelling infrastructure**	**Camb City Council/ Camb County Council/ Greater Cambridge Partnership**	**-**	-	n/a	n/a	**-**	**-**	**Consider as part of overall strategy to enable EV uptake**
52	No measure proposed	Promoting low emission transport	Public vehicle procurement	Camb County Council	-	-	n/a	n/a	-	-	Nothing in place at the moment
53	**Procuring low emission vehicles for own fleet where possible**	**Promoting low emission transport**	**Public vehicle procurement**	**Camb. City Council and shared services**	**In place**	**Ongoing**	n/a	n/a	**Ongoing**	**Ongoing**	**10 vans and 2 cars on fleet, around 10%. Replacement with low emission versions of larger vehicles will come forwards when cost difference is closer.**
54	**Fee reduction for low emission taxis**	**Promoting low emission transport**	**Taxi emission incentives**	**Camb. City Council**	**2016**	**2018**	**Minimum of 9 HCV and 5 PHV per annum per annum from 2018/19**	**1.5 – 4.5% reduction in NOx emissions**	**Due 2018**	**-**	**See text**

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
55	**Licensing condi-tions to require low emission taxis**	**Promoting low emission transport**	**Taxi Licensing conditions**	**Camb. City Council**	**2016**	**From 2018**	**Minimum of 9 HCV and 5 PHV per annum from 2018/19**	**1.5 – 4.5% reduction in NOx emissions**	**2 EV and 30 petrol hybrid taxis**	**-**	**See text**
56	**Lowering emissions from public service vehicles (buses and coaches)**	**Promoting low emission transport**	**Other**	**Camb City Council/ Camb. County Council/ Greater Cambridge Partnership**	**Ongoing**	**Ongoing**	**100% buses E6 or better No increase in emissions from additional services**	**Could be significant**	**35% bus journey kilometres E6 in Cam-bridge Core Area**	**-**	**See text EV buses being considered**

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
57	Home-working policies	Promoting Travel Alternatives	Encourage and facilitate home working	TfC Camb County Council Camb City Council	Ongoing	Ongoing	-	n/a	In place	ongoing	To reduce the need to travel to work
58	**Active Travel Infra-structure via GCP measures**	**Promoting Travel Alternatives**	**Intensive Active Travel campaign and infrastructure**	**TfC** **Camb County Council** **Greater Cambridge Partnership**	**Not at present**	**-**	**n/a**	**n/a**	**-**	**-**	**Nothing specific in place at the moment**
59	Travel for Cambridge-shire	Promoting Travel Alternatives	Personalised Travel Planning	Camb County Council	Ongoing	Ongoing	n/a	n/a	Not recorded.	Ongoing	Can be required for major sites at point of residents moving in to ensure they are aware of all travel options/ options for travel other than private car.
60	**Refresh Cam-bridge City Council Travel Plan**	**Promoting Travel Alter-natives**	**Other**	**Cambridge City Council**	**In discus-sion**	**Winter 2017/2018**	**Adoption of new Travel Plan**	**n/a**	**-**	**Winter 2017/2018**	**To work and for work**
61	Workplace Travel Plan	Promoting Travel Alternatives	Promote use of rail	TfC Camb County Council	In place	ongoing	n/a	n/a	-		Discounts available for TfC partners

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
62	Cycle parking provision in Local Plan	Promoting Travel Alternatives	Promotion of Cycling	Environ-mental Services/ Planning District councils	In place	Ongoing	n/a	n/a	-	-	To be carried forward to future Local Plans, with standards reviewed where appropriate.
63	S106 agree-ments for cycling and walking infra structure	Promoting Travel Alternatives	Promotion of Cycling	Environ-mental Services/ Planning District councils	In place	Ongoing	n/a	n/a	Ongoing	Ongoing	Part of development/ planning contributions
64	Cycle parking design guide	Promoting Travel Alternatives	Promotion of Cycling	Environ-mental Services/ Planning District councils	In place	Ongoing	n/a	n/a	In place	In place	https://www.cambridge.gov.uk/sites/default/files/docs/CycleParkingGuide_std.pdf
65	Schemes and grants	Promoting Travel Alternatives	Promotion of Cycling	Camb City Council/ Camb. County Council/	Ongoing	Ongoing	n/a	n/a	-	-	https://www.cambridge.gov.uk/cycling-and-walking
66	Schemes and grants	Promoting Travel Alternatives	Promotion of walking	Camb City Council/ Camb. County Council/	Ongoing	Ongoing	n/a	n/a	-	-	https://www.cambridge.gov.uk/cycling-and-walking
67	Travel for Cambridge shire Travel Plan Services	Promoting Travel Alternatives	School Travel Plans	TfC Camb County Council	Ongoing	Ongoing	n/a	n/a	Not recorded.	Ongoing	Travel Plan Services offer help with writing, developing, maintaining and monitoring as well as support for Travel Plan implementation

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
68	Travel for Cambridgeshire Travel Plan Services	Promoting Travel Alternatives	Workplace Travel Plans	TfC Camb County Council	Ongoing	Ongoing	n/a	n/a	Ongoing	Ongoing	Travel Plan Services offer help with writing, developing, maintaining and monitoring as well as support for Travel Plan implementation
69	Travel for Cambridgeshire (TfC)	Promoting Travel Alternatives	Other	TfC Camb County Council	Ongoing	Ongoing	n/a	n/a	Ongoing	Ongoing	TfC offers employers a range of services, tools and resources to support sustainable travel choices and commuting behavior, to help save time and money and improve staff health and wellbeing. The aim is to implement effective travel initiatives that promote cycling, walking, public transport and car sharing to work.

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
70	Cambridge Matters magazine	Public Information	Leaflets	Environ-mental health and Media Team, Camb City Council	Ongoing	Ongoing	n/a	n/a	Ongoing	Ongoing	Delivered to every household in the district. Air quality articles in each quarter
71	Twitter and Facebook	Public Information	Social media	Environ-mental health and Media Team, Camb City Council	Ongoing	Ongoing	n/a	n/a	Ongoing	Ongoing	As required
72	Provide information on request	Public Information	Radio	Environ-mental health and Media Team, Camb City Council	As requested	Ongoing	n/a	n/a	Ongoing	Ongoing	As required
73	Provide information on request	Public Information	TV	Environ-mental health and Media Team, Camb City Council	As requested	Ongoing	n/a	n/a	Ongoing	Ongoing	As required
74	Website	Public Information	Internet	Environ-mental health and Media Team, Camb City Council	Ongoing	Ongoing	n/a	n/a	Ongoing	Ongoing	Plenty of information and updates on the City Council website[37]

[37] https://www.cambridge.gov.uk/air-pollution

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
75	Publicity campaign	Public Information	Other	Environ-mental health and Media Team, Camb City Council	In discussion	2018 onwards	n/a	n/a	n/a	-	Ongoing campaign to provide information about air quality and actions
76	**Cam-paigns to provide informa-tion about impacts air pollution on health**	**Public Informa-tion**	**Other**	**Environ-mental health and Media Team, Camb City Council, PH Camb County Council**	**Ongoing**	**2018 onwards**	**n/a**	**n/a**	**n/a**	**-**	**Prepare and disseminate information about health impacts**
77	Text Alerts when air quality is poor	Public Information	Other	Environ-mental health, Camb City Council, PH Camb County Council	In discussion	2018 onwards	n/a	n/a	n/a	-	Will require resource to set up
78	Campaign to provide information about impacts of wood burning, what type of wood to burn and how to burn it efficiently	Public Information	Other	Environ-mental health and Media Team, Camb City Council	Ongoing	2017 onwards	n/a	n/a	n/a	ongoing	Defra have recently produced information leaflets; these are available from the website and publicised in Cambridge Matters

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
79	Publicity campaign	Traffic Manage-ment	Anti-idling enforcement	Environ-mental health and Media Team, Camb City Council	Ongoing	Ongoing	n/a	n/a	-	Ongoing	Anti-idling information in Cambridge Matters
80	Penalty notices for non-compli-ance	Traffic Manage-ment	Anti-idling enforcement	Camb City Council	In discussion	-	n/a	n/a	-	-	Would need additional resource for enforcement Additional by-laws may be required.
81	Expansion of residents' parking schemes	Traffic Manage-ment	Emission based parking and permit charges	Highways Team, Camb County Council	2017	2018	Number of parking spaces in schemes	n/a	Discussion phase	Rolling programme	Will limit commuter traffic
82	Wider expansion of residents' parking schemes	Traffic Manage-ment	Emission based parking and permit charges	Highways Team, Camb County Council	2017	2019	Number of parking spaces in schemes	n/a	Discussion phase, tentative	Rolling programme	Will further limit commuter traffic
83	**Conges-tion charging or road user**	**Traffic Manage-ment**	**Road-User charging/ congestion zones**	**Infra-structure Team, Camb County Council, Greater Cambridge Partnership**	**Not currently under discus-sion**	**TBC**	**n/a**	**-**	**-**	**-**	**May be part of a Clean Air Zone.**

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
84	Recon-figuration of road space in Cambridge	Traffic Manage-ment	Strategic highways improvements	Infra-structure Team, Camb County Council, Greater Cambridge Partnership	In discussion	TBC	Agreement and implementation of schemes	n/a at this stage	n/a	TBC	County/City/ GCP scheme. See text
85	Creation of better cycling and walking on key routes	Traffic Manage-ment	Re-prioristisation of road space	Infra-structure Team, Camb County Council, Greater Cambridge Partnership	In discussion	TBC	n/a	n/a	n/a	TBC	County/City/ GCP scheme. See text Also see Transport and Planning Infrastructure
86	**Extension of Core Area schemes – limiting access to city centre**	**Traffic Manage-ment**	**Access management**	**Infra-structure Team, Camb County Council, Greater Cambridge Partnership**	**In discus-sion**	**TBC**	**n/a**	**Could be substantial in Core Area**	**n/a**	**TBC**	**County/City/ GCP scheme. See text**
87	No measure proposed	Traffic Manage-ment	Testing vehicle emissions	-	-	-	-	-	-	-	Not required.
88	Review of traffic signals in Cambridge	Traffic Manage-ment	UTC, congestion management, traffic reduction	Greater Cambridge Partnership	Review in progress	TBC	n/a	n/a	Report due	n/a	GCP study to review existing infrastructure and consider future technology which may improve traffic flow and reduce idling, and could include bus prioritisation.

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
89	Workplace Parking Levy for employers with more than 300 employees in an area to be specified	Traffic Manage-ment	Workplace Parking Levy	Camb County Council/ Greater Cambridge Partnership	In discussion	TBC	TBC	n/a	n/a	n/a	County/City/ GCP scheme. See text
90	No new measures planned	Traffic Manage-ment	Parking enforcement	Camb County Council	In place	In place	n/a	n/a	n/a	Ongoing	No further action required unless the civil enforcement team take up penalty notices for idling.

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
91	Improve-ments to bus routes	Transport Planning and Infra-structure	Bus route improvements	Camb County Council/ Greater Cambridge Partnership	In discussion	TBC	n/a	n/a	Ongoing	Ongoing	County/City/ City Deal scheme. See text A1307 Three Campuses/ Cambourne to Cambridge/Histon Road/Milton Road/City Access
92	New and/or improved cycle routes	Transport Planning and Infra-structure	Cycle network	Camb County Council/ Greater Cambridge Partnership	In discussion	TBC	TBC	n/a	Chisholm Trail plans agreed	TBC	County/City/ City Deal scheme. See text. A10 Royston to Cambridge/A1307 Three Campuses/ Cambourne to Cambridge/Histon Road/Milton Road/City Access/Chisholm Trail/Cross City Cycling/Greenways project
93	New and/or improved walking routes	Transport Planning and Infra-structure	Cycle network	Camb County Council/ Greater Cambridge Partnership	In discussion	TBC	TBC	n/a	Chisholm Trail plans agreed	TBC	County/City/ City Deal scheme. See text. A10 Royston to Cambridge/A1307 Three Campuses/ Cambourne to Cambridge/Histon Road/Milton Road/City Access/Chisholm Trail/Cross City Cycling/Greenways project

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
94	Bike Hire schemes	Transport Planning and Infra-structure	Cycle hire scheme		In place	n/a	n/a	n/a	n/a	n/a	Ofo is trialling a bike hire scheme in Cambridge. This is viable without intervention from local authorities.
95	Improve-ments to P&R sites	Transport Planning and Infra-structure	Public transport improvements – interchanges and stations	Camb County Council/ Greater Cambridge Partnership	In discussion	TBC	TBC	n/a	n/a	TBC	Greater Cambridge Partnership scheme. See text
96	Piloting rural hubs	Transport Planning and Infra-structure	Public transport improvements – interchanges and stations	Camb County Council/ Greater Cambridge Partnership	In discussion	TBC	n/a	n/a	n/a	TBC	Greater Cambridge Partnership, see text
97	New station to serve the hospital and bio-medical campus	Transport Planning and Infra-structure	Public transport improvements – interchanges and stations	Greater Cambridge Partnership with CBC2020 campus	In discussion	TBC	n/a	n/a	n/a	TBC	Unlikely to be completed in the lifetime of this Plan but important for future.
98	No measure proposed	Vehicle fleet efficiency	Driver training and ECO aids	-	-	-	-	-	-	-	Nothing in place at the moment
99	No measure proposed	Vehicle fleet efficiency	Fleet efficiency schemes	-	-	-	-	-	-	-	Nothing in place at the moment
100	No measure proposed	Vehicle fleet efficiency	Promoting Low Emission Public Transport	-	-	-	-	-	-	-	Nothing in place at the moment
101	No measure proposed	Vehicle fleet efficiency	Vehicle retrofitting	-	-	-	-	-	-	-	See under public transport improvement

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
102	Improve air quality by increasing tree cover	-	-	Camb City Council	In discussion	TBC	-	-	Part of arbori-cultural policy to increase canopy cover.	TBC	Disruption of air flow intercepting particles as well as absorption into leaf tissue. Favour hypo-allergenic species

Appendix A: Key Actions from Air Quality Action Plan 2008

Projects delivered through the past action plan include:

- Lowered pollution from buses and taxis by requiring better vehicle emission standards from operators. Bus operators must have an improvement plan. Taxis have a strict age limit.
- Secured an Air Quality Grant from the government to carry out real-time emissions monitoring in Cambridge to find out how much pollution is coming out of the vehicle exhausts. The Cambridge Real Emissions Project report[38] showed that emissions in the city centre are higher than those expected, and that improvements with increasing Euro standard are not always seen. Petrol hybrid vehicles have very low emissions.
- Provided EV charge points in city centre car parks. Both Queen Anne Terrace and Grafton East car parks have charging points available to the public.
- Secured a grant from the Office of Low Emission Vehicles (OLEV) to look at the prospects for an ultra-low emission vehicle (ULEV) taxi fleet in Cambridge. This was used as the basis for a successful application for £426,000 to OLEV for funding for the installation of 21 Rapid and 3 Fast Charge Points for taxis over the next 3 years, to 2020.
- Introduced policies in the Local Plan to prevent worsening of air quality in the centre of Cambridge.
- Reduced emissions from homes in Cambridge through £5m investment in energy saving measures such as solid wall insulation and new boilers
- Provided a guided busway along a former railway line to bring passengers into Cambridge from the west. The Busway carries more than 3.8 million passengers a year and numbers continue to increase.
- Installed real-time public transport information at City bus stops
- Improved existing cycleways and provided more cycle lanes and pathways
- Incorporated air quality into the Joint Strategic Needs Assessment on Transport and Health

[38] https://www.cambridge.gov.uk/air-quality-news

Appendix B: Source Apportionment data

Table 1.1 Sources of NOx in the Cambridge AQMA.

City Centre NOX sources	Regional background	Other	Industrial	**Roads**
Downing Street	10%	10%	0%	80%
Emmanuel Street	12%	13%	0%	75%
King Street	8%	8%	0%	84%
Parker Street	7%	8%	0%	85%
Parkside	14%	15%	0%	71%
Pembroke Street	10%	9%	0%	81%
Regent Street	7%	7%	0%	86%
St Andrew's St	6%	6%	0%	89%
AVERAGE	9%	10%	0%	**81%**
Ring Road NOx sources				
Catholic Church	15%	13%	0%	72%
Chesterton Road	31%	16%	1%	53%
East Road	19%	18%	0%	64%
Elizabeth Way	14%	9%	0%	76%
Gonville Place	12%	11%	0%	78%
Lensfield Road	19%	14%	0%	66%
Maids Causeway	11%	10%	0%	80%
Montague Road	18%	11%	0%	71%
Newnham Road	10%	5%	0%	84%
Northampton Street	11%	9%	0%	79%
Victoria Avenue	13%	8%	0%	79%
AVERAGE	16%	11%	0%	**73%**

Table 1.2 Vehicle Percentage contributions of NOx in the AQMA

City Centre	Motorcycle	Car	Taxi	LGV	Bus	HGV
Downing Street	0%	10%	14%	8%	28%	39%
Emmanuel Street	0%	8%	9%	6%	63%	13%
King Street	0%	5%	7%	4%	71%	13%
Parker Street	0%	7%	8%	5%	49%	31%
Parkside	0%	9%	8%	6%	46%	31%
Pembroke Street	0%	11%	14%	9%	26%	39%
Regent Street	0%	7%	9%	6%	51%	27%
St Andrew's St	0%	5%	6%	4%	28%	57%
AVERAGE	0%	8%	9%	6%	**45%**	31%
Ring Road	Motorcycle	Car	Taxi	LGV	Bus	HGV
Catholic Church	0%	31%	3%	14%	23%	28%
Chesterton Road	0%	43%	4%	24%	15%	13%
East Road	0%	39%	4%	20%	17%	20%
Elizabeth Way	0%	55%	4%	25%	5%	11%
Gonville Place	0%	40%	4%	19%	17%	21%
Lensfield Road	0%	39%	4%	15%	18%	24%
Maids Causeway	0%	15%	20%	12%	20%	34%
Montague Road	0%	55%	4%	25%	5%	11%
Newnham Road	0%	43%	3%	17%	9%	28%
Northampton Street	0%	46%	3%	21%	14%	16%
Victoria Avenue	0%	25%	26%	19%	24%	7%
AVERAGE	0%	**43%**	4%	20%	14%	19%

Appendix C: How the Reduction in road NOx emissions has been calculated

The following is provided as an example of how to calculate the reduction in road NOx emission required to meet the 40µg/m3 annual mean objective for NO2. The measured or modelled NO2 at the worst-case relevant exposure location is 45µg/m3. It is based on the required reduction in the road NOx concentration at the worst-case relevant exposure location.

Step 1: Use the NOx to NO2 calculator (see para 7.86 of Technical Guidance LAQM.TG16[39]) to obtain the NOx concentration that equates to the 45µg/m3 NO2, which in this example is 99.0µg/m3.
Step 2: Obtain the local background concentrations of NOx and NO2 for the year of interest. For this example these are 39.8 and 28.8µg/m3 respectively, from the background maps (see para 7.68 Technical Guidance LAQM.TG16).
Step 3: Calculate the current "road NOx" concentration (road NOx-current), i.e. the difference between total NOx (calculated or measured) and local background NOx. In this example road NOx-current will be 59.2µg/m3 (99.0 minus 39.8µg/m3).
Step 4: Calculate the road NOx concentration required to give a total NO2 concentration of 40µg/m3, i.e. the annual mean objective (road NOx-required). This can be done using the NO2 from NOx calculator by entering a total NO2 concentration of 40µg/m3 along with the local background NO2 concentrations. The calculator gives the road NOx-required concentration which in this example is 44.3µg/m3.
Step 5: Calculate the road NOx reduction to go from the road NOx-current to the road NOx-required. In this example the road NOx reduction is 14.9µg/m3 (59.2minus 44.3µg/m3), which represents a 25.2% reduction in road NOx (14.9/59.2 as a percentage).

1. The measured worst-case relevant exposure location in 2016 is Parker Street, where the continuous analyser measured the annual mean nitrogen dioxide to be 41 micrograms per cubic metre. Using the NOx – NO2 calculator, this calculates the NOx emissions to be 47.87micrograms per cubic metre.
2. The local background concentrations for the relevant kilometre square are 27.60 micrograms per cubic metre NO_X and 18.75 micrograms per cubic metre NO_2.
3. Thus the current road NOx is 47.87 micrograms per cubic metre
4. The road NOx concentration required to give a total NO2 concentration of 40 micrograms per cubic metre is 45.4 micrograms per cubic metre
5. (47.87-45.4)/47.87x100 = 5.2%.

[39] https://laqm.defra.gov.uk/technical-guidance/

Appendix D: Development and Implementation of Cambridge City Council AQAP

This AQAP was prepared by the Environmental Health Department of Cambridge City Council under the direction, support and agreement of the Steering Group which is made up of officers and departments across the city and county councils.

Steering Group

This AQAP was prepared by the Environmental Health Department of Cambridge City Council under the direction, support and agreement of the Steering Group which is made up of the following officers and departments:

Cambridge City Council
Joel Carré (Head of Environmental Services)
Yvonne O'Donnell (Environmental Health Manager)
Jo Dicks (Environmental Quality & Growth Manager)
Anita Lewis (Scientific Officer)
Stephen Kelly (Director of Planning and Economic Development)
Julian Sykes (Planning Policy)
Sarah Dyer (Planning Policy)
Cambridgeshire County Council
Jeremy Smith, (Head of Transport & Infrastructure Policy & Funding)
Iain Green (Public Health - for Liz Robin/Linda Sheridan)
Sonia Hansen (Highways)
Hilary Holden and Paul Rowlinson (Greater Cambridge Partnership)
South Cambridgeshire District Council – ex officio
Paul Quigley (Head of Environment Commissioning)
Soraya Hashemi (Scientific Officer)

The Steering Group met 4 times in January, April, July 2017 and January 2018.

Consultation and Stakeholder Engagement

The Steering Group has consulted with the statutory consultees listed below, as required by Schedule 11 of the Environment Act 1995.

The response to our consultation stakeholder engagement is given in Appendix E.

Consultation Undertaken

Yes/No	Consultee
Yes	Defra
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

The Air Quality Action Plan will be officially launched and consulted upon following formal adoption at the Environment Scrutiny Committee in March 2018.

The consultation will follow the procedures set out in Cambridge City Council's consultation toolkit[40] The Air Quality Action Plan is a 'live' document, so will be updated on a regular basis.

[40] http://live.drupal.intranet.ccc.local/consultation

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

Consultee	Category	Response	Comment
Anglia Ruskin University	Academic Institution and Employer	Overall a thorough plan with sensible proposals. Suggest establishment of high profile forum for employers and transport providers to co-ordinate promotional activities such Cambridge car-free days/ weeks, cycling competitions, joints events, sharing travel survey data, etc.	Worth consideration, Steering Group will discuss and decide how to proceed.
Cambridge Past Present Future (CambridgePPF)	Local charity	CambridgePPF welcome this comprehensive report, and are in full agreement with the measures to be taken. The only criticism is that they don't go far enough. Recommend: Change the relationship with the bus operators. As one of the two major sources of NOx, buses have to be tackled as soon as possible. We hope that the Quality Bus Partnership will be effective; otherwise alternative means must be sought. Demonstrate commitment by using stronger words for pushing change. For example, *'required'* would be better than *'encouraged'*. Reduce all traffic where possible, and ensure incentives to convert to low NOx. Incorporate this work with other proposals across the city so that a wider, more holistic approach is incorporated. This would include the work the Greater Cambridge Partnership and the Mayor are working on, for example. Comments: A great strength of the plan is the solid body of measurements of emissions that's being built up. It provides good evidence to feed into the current plan, and will be an invaluable baseline in the future. We welcome measures to shift the taxi feet towards low pollution vehicles. Although not a high proportion of	The Buses Act 2017 gives potential additional options for working with operators, through two levels of partnership to franchising. The first level of partnership is broadly similar to the current partnership arrangements, although there are more areas that could be included, however, they remain voluntary. There is more potential control under a franchising agreement, but this is something that only the Combined Authority can pursue. The CA is about to commission a review of passenger transport in Cambridgeshire and Peterborough looking at existing provision and future

		emissions at the moment, that may grow; also this is one area where the Council does have control through the licensing system. The other major source, HGVs, is clearly hard to deal with. It also needs additional data from ANPR to identify vehicles. The plan does not make plain how change will be either coerced or incentivised. Cars are less important to total NOx in the centre, because they are already largely excluded. However at rush hour the congestion affects all traffic, and leads to increased pollution from idling engines of all types. It's disappointing that (as usual) the plan mentions reducing congestion as an important component of air quality measures but shies away from any really effective measure such as road pricing.	options, and is expected to report in the autumn. Air Quality is an integral part of the GCP work. Reducing traffic flow through demand management measures and seeking low emission solutions to freight are part of the GCP remit and are being actively considered.
Cambridge University Hospital	Major local employer	As public health is the overriding driver for action, this Plan could perhaps provide more depth on the impacts and implications of poor air quality. The majority of substantive references relate to $PM_{2.5}$ which is not identified as a priority issue in the Plan – could perhaps do with more on NO_2. Could also identify (schematically) the range of responsibilities/accountabilities from national government through local authorities, business and commercial organisations, public sector, third sector, community to personal. Would like to know the PM_{10} legal limit and perhaps any advisory on $PM_{2.5}$. Ability to monitor real-time emissions of a range of pollutants using small sensors could be interesting to describe, incl. results to date and the future of the	Will include more detail on nitrogen dioxide health impact when COMEAP report is issued. Defra require consideration of $PM_{2.5}$ because there is a PHOF indicator for this pollutant. Will consider a schematic, but will need to retain focus on actions. Information now included. Will discuss provision of this information with third party research project directors.

		project. Perhaps an appendix on the measurement/monitoring infrastructure across Cambridge would be helpful – covering permanent, temporary and ad hoc projects.	This information is in the Annual Status Reports to Defra.
		This seems to show Long Road exceeding NAQO but no reference within the document to this breach – i.e. which bit of Long Road, data source, implications and actions.	This measurement is near the junction of Trumpington Road and measures changes in nitrogen dioxide related to traffic. There are no relevant receptors near to the diffusion tube. Housing is set back from the road.
		Could usefully include a section on public and commercial organisational travel planning across Gt. Cambridge – not just in relation to planning obligations but as substantive Corporate Social Responsibility responses. The identification, co-ordination and recognition of these initiatives is very important. Delivering better AQ is a shared responsibility. Should also perhaps reference the contribution of third sector organisations and actions that reach into local communities (including maintenance of new residential development travel plans) and promote personal responsibility (from turning engines off in stationary vehicles to the installation of solar panels).	Travel planning in the widest sense is an important tool. This is an interesting suggestion for a workstream that could be developed and will be discussed at the Steering Group.
		The section on the measures would benefit from a textual introductory section that groups together the main sections of content – describing and summarising the pressure-state-response elements in a more approachable and digestible manner.	Will revisit for update/future versions of Plan.
		Combustion plant is a significant section but is not referred to in the main body of the plan. Perhaps, as a good news story through successful management etc. it	Acknowledged, but need to be aware of the potential NOx contributions from areas of

		could be highlighted – i.e. managed in Cambridge so as not to materially contribute to the problem. Could CO_2/GHGs be referenced as pollutants in terms of concentration of atmospheric carbon? The medium to long-term effects of climate change on human health are likely to dwarf and exacerbate those referenced in the Plan. This brings in important wider links to the Cambridge Sustainable City programme etc.	substantial new plant in the future. Carbon/climate change is without the remit of LAQM.
Chamber of Commerce		Waiting response	
Defra	Government	Waiting response	
Environment Agency		Comment: Protecting Air Quality is embedded into the EA objectives and at a local level our main responsibility is for commenting on the contribution from regulated industry on local air quality. We are encouraged by the references to the Medium Combustion Plant Directive (MCPD) within the document. The changing energy generation market will mean that medium combustion plant, including specified generators (see Statutory Instrument 110 2018), will become a bigger feature across East Anglia and within the Cambridge City Council Local Authority Boundary. We are awaiting further DEFRA clarification on how the MCPD will apply and we suggest we need to ensure a closer partnership, working with Local Authorities, on ensuring that industrial sources do not compromise the improvements that are being made on Air Quality from other measures. Recommend: we would suggest that Cambridge City Council, and the County Council, keeps abreast of the changing regulatory requirements under the	Noted.

		Environmental Permitting Regulations for Specified Generators and Medium Combustion Plant and works closely with the local Environment Agency Installations Team at delivering the air quality requirements from the Environmental Permitting Regulations 2018.	
Marshalls Group	Major local employer	Apologies received.	
South Cambridgeshire District Council		Concern about the practical impact of the Theme One, reduce emissions from taxis, on the movements of the taxis licenced by SCDC, as South Cambs and the City have separate licencing regimes. Will there be any entry restrictions/monitoring introduced as part of this measure? If so, this could result in loss of work for SCDC taxi licence holders as South Cambs is not yet enforcing such taxi licensing policy. There are several funding schemes proposed to assist and speed up this transition. Could this include the SCDC taxis? At SCDC we are moving towards facilitating Taxi dedicated EV charging points at major and commercial developments, however no supporting planning policy as such is yet in place to justify this request. SCDC is a partner in OLEV bid and will benefit from rapid chargers in surrounding villages, (locations yet to be confirmed). Is there a budget within the bid to be allocated to SCDC to assist with E-Taxi transition schemes? Will Theme Two, reduce emissions from Buses and Coaches, restrict movements of services travelling through surrounding villages (SCDC)? Does it include those Buses services run by County or Private Operators? Is the budget for improving bus services to	Entry restrictions on vehicles entering any Clean Air Zone established by the Greater Cambridge Partnership. Many taxi drivers (City and SCDC) are already using petrol-hybrid vehicles as they are more economical to run. This is useful. Provision of EV for all residents could be included as part of LES. No specific budget allocated. Any Clean Air Zone will apply to any services passing through central Cambridge. There is no specific budget

		EU VI is funded by S106? Regarding Clean Air Zone, is that chargeable entry restriction applicable to all type of buses and coaches or specific - standard level entry only? Theme Three, reduce emissions from HGVs will be beneficial if extended to SCDC, however practicalities are yet to be considered. SCDC has similar approach in place for the other themes.	for improving bus services to EU VI. CAZ details are yet to be determined.
University of Cambridge	Academic Institution, Employer and major developer.	Supportive of the Action Plan and proposed measures in general. Comment. The University's draft Transport Strategy sets a target of 75% of work journeys to be made by sustainable modes and the Universal bus service, subsidised by the University, is run with Euro VI vehicles, the cleanest diesel engines available. We feel that that action plan should make reference to actions already being taken by key stakeholders – for example the investment in Euro VI compliant buses for the Universal bus service. In addition, the AQAP should acknowledge that public transport proposals within the Greater Cambridge Partnership area (of which both the City Council and the University are partners) and Combined Authority are evolving rapidly - a lot of the context is already out of date e.g. replacement of WPL with an environmental congestion charge; and the potential for moving towards a mass transit system eg CAM metro. Recommend. Stronger emphasis on the need for the development planning process to deliver workplace travel plans secured through s106 agreements which are effectively monitored and enforced by the planning authorities.	Plan was up to date at time of circulation and checked by GCP partners. Will include a reference to the ongoing rapid evolution of GCP proposals. Will be working on improvements to development planning process during 2018.

		Improve signalling at junctions to improve bus flow; revisit locations of bus stops; driver training for bus drivers; EV charge points for buses	GCP has a signalling improvement project; bus stop locations are revised on an ad hoc basis, EV charge points for buses will be introduced when feasible.
The draft Air Quality Action Plan was sent out to the statutory consultees. However, some individual responses were received from within these organisations. Their responses are set out below.			
John Carroll	Private Individual	The action plan is missing a section that tells one about whether nation/industry wide standards have been reached for the design, charging capacity and fees for charging points. One can see only too easily how the plug on one's car may not fit into the available charging socket or the volt-amp rating is inappropriate for one's particular car. One can also see a 'marvellous' opportunity for ripping off car owners with excessive fees for using charging points. The report makes charging points sound like simply switching on a light. That might not be the case unless considerable thought and international agreements have been made. The lack of this information in the action plan suggests a failure of preparation around a key requirement of the plan (i.e. the success of charging points). This failure can prepare the whole plan to fail or lead to expensive retro-fitting.	These points are being considered as part of the projects to introduce more EV charge points.
Gillian Moore	Private Individual	Reducing pollution from buses, coaches and HGVs should be a higher priority than tackling pollution from taxis. The Council should forbid tourist buses from keeping their engines on when stationary, and should require the	Acknowledged. The themes are not listed in order of priority. There is a working group of officers and members from

		buses to park at Park & Ride sites when they have dropped off their passengers. It will be important not just to reduce emissions through electrification but to reduce traffic, especially by the worst polluters, or at the very least not allow it to grow as Cambridge expands.	both councils looking at these issues. Traffic reduction is an objective of the GCP.
Peter Landshoff	Personal, active member of local organisations.	The number of older people (more susceptible to poor air quality) is increasing. Public transport needs to improve, with more frequent services to all parts of Cambridge and within Cambridge, and at all times of day. Better waiting facilities are required (correct information, shelters, seating) to encourage and enable use.	Noted. Improved public transport offering and facilities will encourage uptake.
Private Individual	Personal	The measures proposed, while heading in the right direction, are failing to grasp the bull by the horns and deal with the primary causes of the problem. The rapid expansion of Cambridge is leading to the problems of a large metropolis. The worst air pollution is near the bus station where many people are exposed. The mandated reduction in emissions is insufficient. The frequency of bus services is insufficient to persuade people out of their cars; on the other hand, many run mostly empty during the day, emitting more pollutants than the equivalent number of cars. Recommends: move jobs out of Cambridge where there is an excess of dormitory over employment accommodation (through the planning process); force buses, taxis, HGV entering the city to be electric; introduce a congestion charge for non-electric cars.	Steering Group will discuss role of spatial planning. Clean Air Zone will reduce emissions from cars, taxis and buses. Electric HGV are not yet available, however GCP are considering how movement of freight will be managed in the future.

Private Group	Residents of Brierley Walk area, north Histon Road	In agreement with the measures. The easiest and most effective way of reducing air pollution is to significantly reduce the number of vehicles using the arterial roads leading into Cambridge. Recommend a new large Park and Ride near to the junction of the B1049 with the A14, either at Impington Farm or on the land between the Holiday Inn and the Guided Bus Way at the foot of the bridge. The three arterial roads on the north and west side of the City, Histon Road (B 1049), Huntingdon Road (A1307) and Barton Road (A603) should have Park and Rides, to accommodate the massive 30 % increase in traffic which is predicted by 2031. The cost of any P&R should be subsidised for parking fees and /or bus fares. Recommend. Retain or replace the hedge along the Histon Road between Blackhall Road and Brownhall Road (to continue to provide residents with privacy and protection from air pollution and vehicle noise) - should proposals to widen the Histon Road to accommodate a bus lane and cycle lanes under the City Deal which would necessitate destroying the hedge.	GCP is looking at new potential P&R site to accommodate traffic growth, as well as expansion and improvement of existing P&R sites. The GCP is considering funding options to subsidise parking at the P&R sites. A final decision had not been confirmed at the time of writing.

Appendix F: Reasons for Not Pursuing Action Plan Measures

Table B.1 – Action Plan Measures Not Pursued and the Reasons for that Decision

Action category	Action description	Reason action is not being pursued (including Stakeholder views)
	Complete table for all measures that will not been pursued.	Add a 2-3 sentence summary for each action
	To be completed after the launch	

Appendix G: Policy 36 Local Plan 2014

Policy 36: Air quality, odour and dust

Development will be permitted where it can be demonstrated:

a. that it does not lead to significant adverse effects on health, the environment or amenity from polluting or malodorous emissions, or dust or smoke emissions to air; or

b. where a development is a sensitive end-use, that there will not be any significant adverse effects on health, the environment or amenity arising from existing poor air quality, sources of odour or other emissions to air.

According to the end-use and nature of the area and application, applicants must demonstrate that:

c. there is no adverse effect on air quality in an air quality management area (AQMA);

d. pollution levels within the AQMA will not have a significant adverse effect on the proposed use/users;

e. the development will not lead to the declaration of a new AQMA;

f. the development will not interfere with the implementation of the current Air Quality Action Plan (AQAP);

g. any sources of emissions to air, odours and fugitive dusts generated by the development are adequately mitigated so as not to lead to loss of amenity for existing and future occupants and land uses; and

h. any impacts on the proposed use from existing poor air quality, odour and emissions are appropriately monitored and mitigated by the developer.

Supporting text:

4.50 Pollution to air can arise from many sources and activities, including traffic and transport, industrial processes, commercial premises, energy generation, agriculture, waste storage/treatment and construction sites. This policy relates to air pollution from all potential sources, in any potential form and includes dust, fumes and odour.

4.51 The primary local impacts on air quality on Cambridge are from road transport and domestic, commercial and industrial heating sources, such that an air quality management area (AQMA) was designated in the central part of Cambridge in August 2004. Pollution to air can also arise from industrial processes, commercial premises, energy generation,

agriculture, waste storage/treatment and construction sites. Despite increasing economic activity and consequent population increases, the application of air quality management and transport policy has not led to an increase in air pollution in Cambridge. It is important to ensure that development proposals continue to contribute to and enhance the natural and local environment throughout their lifetime.

4.52 Applicants shall, where reasonable and proportionate, prepare and submit with their application a relevant assessment, taking into account guidance current at the time of the application. The criteria for requiring a dust risk assessment/management and/or an air quality assessment are set out in the Air Quality in Cambridge Developers' Guide. Some applications may require appropriate pollution prevention or mitigation measures to be acceptable. Some development may also require a permit under the Pollution Prevention and Control Act 1999.

Appendix H: Greater Cambridge Partnership projects

Greater Cambridge Partnership projects

The A10 Royston to Cambridge Foot and Cycleway
A high quality, consistent foot and cycle link extend from Cambridge all the way through to Royston, aligning with the A10 route.

The A1307, Three Campuses to Cambridge
Provision of better bus, walking and cycling options for commuters along the A1307, linking communities and employment sites between Haverhill and Cambridge.
The preferred options include:

- bus lanes along the A1307 in Linton and between Babraham and Cambridge
- bus-only road from Babraham Road Park & Ride to the Cambridge Biomedical Campus
- new Park & Ride site near the A11
- high-quality cycle routes
- safe walking routes
- road safety improvements between Horseheath and Linton

Cambourne to Cambridge
A bus priority scheme which aims to create better bus journeys between Cambourne and Cambridge, and improve cycling and walking links.

The Chisholm Trail
A new walking and cycling route, creating a mostly off-road and traffic-free route between Cambridge Station and the new Cambridge North Station. It will link to Addenbrooke's Hospital and the Biomedical Campus in the south to the business and science parks in the north.
The north-to-south route which closely follows the railway line, provides a quicker and safer route across Cambridge. It would be largely off-road or along quiet streets, avoiding busy junctions and would link up green spaces in Cambridge including: Coldham's Common, the Leper Chapel Meadows and Barnwell Lake area, and Ditton Meadows (as well as Stourbridge Common beyond).

City Access
This package of proposed measures aims to tackle congestion within Cambridge by the creation of a transport system that meets the needs of our growing city. It plans to achieve a reduction in peak-time traffic levels in Cambridge by 10-15% by 2031.
It aims to help more people get into, out of and around the city by sustainable means, offer better alternatives to travel by car and boost economic growth and quality of life.
The City Access package of proposed measures include:

- pedestrian and cycling infrastructure
- public space and air quality
- better bus services
- travel planning
- smart technology
- traffic management
- workplace parking levy
- on-street parking management (including Controlled Parking Zones)

Cross City Cycling

A cycling scheme made up of five different projects across Cambridge.

- Each scheme aims to improve walking and cycling links to schools and employment centres.
- They will help to reduce congestion and improve air quality, health and road safety.

The Greenways project

This aims to establish a high-quality network of 12 separate routes into Cambridge from surrounding towns and villages, from approximately five to ten miles away. They will primarily be commuter cycle paths, but with additional benefits for pedestrians, horse riders and leisure users.

- A 'Greenway' will be an attractive route segregated from traffic or on quiet roads. The aim is to increase levels of cycling and walking, to reduce congestion as the city grows and to improve the health of the population. Parts of each route exist already, but some may need significant improvement or have missing links.

The Histon Road project

This aims to improve the bus, cycle and walking infrastructure to make these options a more attractive alternative to travel by car.

- Bus priority measures could include: bus lanes, smart signals to prioritise buses, and side-road closures to reduce the need for signals, which add to journey times along the road.

The Milton Road project

This plans to provide faster and more reliable bus journeys into the city, as well as safe and high-quality cycling and pedestrian facilities along its length.

Smart Cambridge was established as a programme by the City Deal Board in August 2015, bringing together local businesses, researchers, councils and partners to explore how data, innovative technology and better connectivity can help to transform the way people use the city's transport network, reduce congestion and boost the local economy.

Rapid Mass Transit Strategic Options Appraisal

An independent review of overground and underground transport options for the Greater Cambridge area to assess a range of options and their impact and viability for supporting economic growth, improving accessibility and connectivity, and addressing current congestion and delay in and around the city.

- The transport modes to be considered in the review include light rail, monorail, bus rapid transit, affordable very rapid transport (AVRT) as well as any others to be put forward by the chosen consultant.
- The Rapid Mass Transit Strategic Options Appraisal was published in January 2018 (available here http://scambs.moderngov.co.uk/documents/s104227/Cambridge%20Mass%20Transit%20-%20CAM%20Proposition_for_Jan%202018%20Meetings_v3.pdf).
- Joint project with Combined Authority

Smart Signals

The Greater Cambridge Partnership has agreed to fund a study of the city's traffic signals. The aspiration is to understand the current provision and what might be possible in the future, to consider options for managing the flow of people across the transport network and enabling sustainable transport priority.

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	Air Quality 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