

Healthier Air for Leicester

Leicester's Air Quality Action Plan (2015-2025)



Consultation Draft

Have your say

This is a consultation document prepared by Leicester City Council on our draft Air Quality Action Plan.

The document proposes actions that the council and its partners can take to improve air quality levels in Leicester.

Before we finalise the plan we want to hear what people have to say about what is in it.

You can comment by filling in an online feedback form via our website consultations.leicester.gov.uk. Alternatively you can print out the hard copy feedback form from our website and post it back to us using the following address:

Transport Strategy
2nd Floor, Rutland Wing
Leicester City Council
City Hall
115 Charles Street
Leicester LE1 1FZ

The Department for Environment, Food and Rural Affairs policy guidance sets out all the statutory organisations which must be consulted on as part of the Air Quality Action Plan consultation process. For Leicester consultation will be conducted with the following groups:

- The Secretary of State
- The Environment Agency
- The highways authority (in English authorities only)
- All neighbouring local authorities
- The county council
- Other public authorities as appropriate
- Bodies representing local business interests and other organisations as appropriate.

The consultation period runs from 17th March to 26th May 2015.

Once the consultation period has ended we will consider all the comments and finalise the Action Plan.

The final Air Quality Action Plan will be available on our website.

Consultation Questions

THEME 1: Reducing Transport Emissions

1. Do you agree that we should lobby Central Government to introduce measures to reduce polluting emissions from diesel vehicles?
 2. Do you agree that we should introduce a Low Emission Zone, first for buses, and then for all vehicles?
 3. What else could we be doing with our partners to reduce transport emissions?
-

THEME 2: Increasing Active Travel

4. Other than those actions currently in the Action Plan, are there any other actions we could be doing to encourage active travel through walking, cycling and bus journeys?
-

THEME 3: Improving Traffic Management

5. Other than those actions currently in the Action Plan, are there any other actions we could be doing to improve traffic management?
-

THEME 4: Improving Land Use Planning

6. Other than those actions currently in the Action Plan, are there any other actions we could be doing to improve air quality through land use planning?

Foreword



I am committed to improving air quality to make the city a better place to live and work. This Air Quality Action Plan sets out how we propose to improve public health and work towards meeting EU Air Quality standards.

We can't achieve this alone - it requires commitment and effort at a local and national level - but it is vital we play our part. I am committed to ensuring that our generation meets its obligation to improve air quality now and in the future.

The cause of poor air quality is largely due to road transport emissions and is associated with a number of adverse health impacts. The measures in this document are proposed as cost effective and appropriate for Leicester and have been drawn up following consultation with stakeholders.

As part of the consultation on this action plan I want to know if we have identified actions that people feel are appropriate to tackle the air quality issues we face or if there are other significant actions that can make a difference. I particularly want to hear from residents and businesses as well as key bodies that can help us tackle this problem including the bus, freight and taxi industries. Only by working together and committing to proposed actions over the coming years can we make a real and lasting difference to the air quality in our city.

Sir Peter Soulsby
City Mayor



Public health has historically been a key concern for local government. Local authorities were the first pioneers of interventions aimed at protecting and improving the health of their local populations. In 2012 formal public health

responsibilities were transferred by statute from the NHS back to local government. It is my view that local government is the natural home for public health responsibilities. Leicester City Council has an ambitious programme of priorities to improve public health and this Air Quality Action Plan reflects this approach.

The evidence is clear: poor air quality can and does have a significant impact on health. It can increase the risk of serious health conditions and can discourage people from walking and cycling. The City Council has been working to address poor quality air for a number of years.

Some measures have proven to be successful but more needs to be done and this plan sets out an ambitious programme of measures aimed at improving air quality across Leicester. A focus on public health runs throughout this plan. This recognises the City Council's approach to public health, acknowledging that many different areas of council activity can support our efforts to improve the health of the population.

Improving air quality will help deliver significant health benefits and contribute to important efforts tackling health inequalities.

Rory Palmer
Deputy City Mayor and Chair, Leicester
Health & Wellbeing Board

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Executive Summary

Poor air quality affects people's health and damages the environment. European and national guidelines set out the levels of pollutants in air that are considered acceptable. In Leicester there are two main pollutants of concern: nitrogen dioxide and particulate matter. The main source of these two pollutants is road traffic, in particular diesel engines.

Like many other UK cities, Leicester currently exceeds the EU threshold level of $40\mu\text{g m}^3$ for nitrogen dioxide in a number of areas. These are predominantly areas where there are large volumes of traffic particularly along radial routes into the city and in the city centre. Monitoring shows that levels of pollutants have decreased from $80\mu\text{g m}^3$ to below $60\mu\text{g m}^3$ in the past few years but not enough to meet EU thresholds.

Defra projections have indicated that air quality in Leicester may reach the EU threshold level by 2025. Those projections are based solely on the improvement in lower emission vehicle technology, without taking into consideration local schemes designed to improve air quality. However this could still mean a significant number of people suffering or dying from the effects of air pollution each year. This ambitious air quality action plan will ensure that we do not remain complacent in our efforts to improve the health of people in Leicester and reduce inequalities. It contains far reaching actions over the period to 2025 intended to significantly reduce air pollution to a level lower than we are required to achieve by law.

The plan has been developed as a result of consultation with key stakeholders, a review of the available evidence and a Defra funded project – the LESTAir project – that modelled different potential pollution reducing measures. As a result we believe this action plan to be informed by the best available evidence and that is feasible and appropriate to Leicester.



Leicester's SkyRide 2014 in the city centre

The plan sets out our ambitions and the 22 actions presented under 4 themes we propose to take to reduce air pollution in Leicester. The themes are:

- Theme 1: Reducing Transport Emissions
- Theme 2: Increasing Active Travel
- Theme 3: Improving Land Use Planning
- Theme 4: Improving Traffic Management

Some of the actions will have a greater impact than others and we have indicated the level of impact expected against each action. It is clear that any one action alone will not be enough to address air pollution. The plan is also clear on the need to work with Government and our partners in order to achieve our overall aim.

Leicester's air quality action plan is ambitious and far reaching. It is informed by knowledge of and commitment to what is necessary to improve the quality of air in Leicester. The consequences of this plan will be more than just reaching EU targets, it will mean better health for the people of Leicester.

1. Leicester's Ambitions by 2025

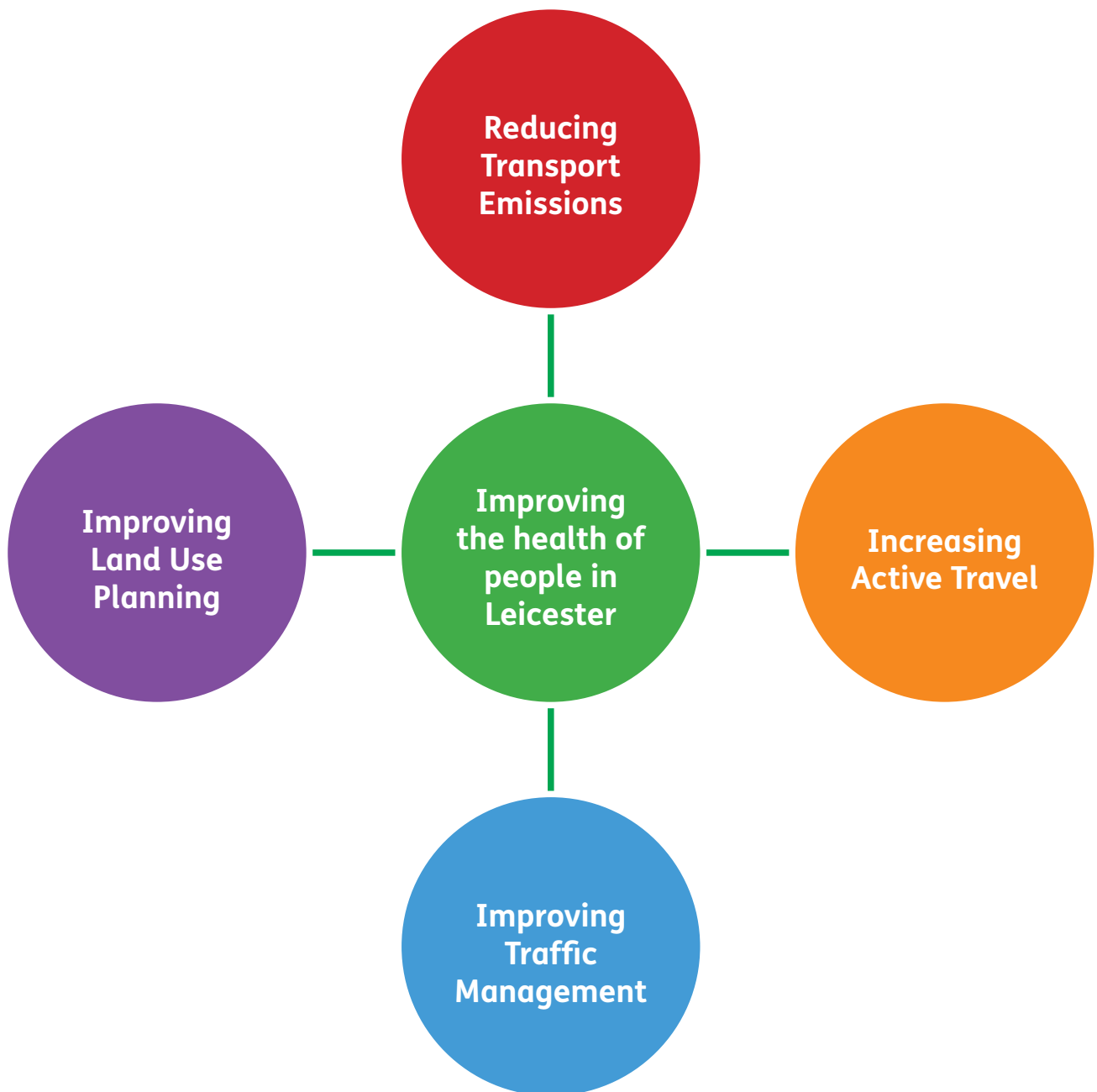
- To substantially improve people's health and reduce premature deaths by improving air quality.
- To introduce a Low Emission Zone for the most polluting vehicles in the City Centre
- To deliver Phase II of our 'Connecting Leicester' initiative by 2019 in the city centre to extend pedestrianisation and remove vehicles from where they are not required.
- To double the number of people cycling daily to 13,500 by 2018 and again by 2023
- For bus, taxi and freight operators to use the cleanest lowest emission vehicles as their first choice for fleet replacement
- To reduce emissions from the Council's fleet operations by 50% by 2025
- For all land use planning decisions to minimise the need for travel by polluting vehicles

'Love Parks, Love Walking' Event, Abbey Park, 2014



Themes

To realise our air quality ambitions for the city, the council and its partners will focus activities on the 22 actions in the Air Quality Action Plan; which are grouped into four themes as presented below.



Proposed actions by 2025

These actions, summarised here, have been identified to deliver Leicester's ambitions. The actions are detailed in section 4 of this document.

Theme 1: Reducing Transport Emissions

1. To lobby and work with Central Government to introduce national measures to progressively reduce polluting emissions from diesel vehicles, for example through fiscal regimes and disseminating national initiatives locally, such as promoting the uptake of low emission vehicles (page 21).
2. To retrofit 37 Euro III buses with clean engine technology by Summer 2015. We will continue to seek further funding to complete a bus retrofitting programme (page 22).
3. To introduce a Low Emission Zone focussed initially on the buses using Haymarket Bus Station and St. Margaret's Bus Station, by 2017, and to work towards an Ultra-Low Emission Zone (ULEZ) for all vehicles over the period to 2025 (page 23).
4. To work with our partners to investigate, by 2016, the feasibility of introducing Gas Buses (page 24).
5. To encourage bus, taxi and freight operators to complete replacement of their fleets with Low Emission Vehicles by 2025 (page 24).
6. To work with the Leicester's Freight Quality Partnership to identify options to improve efficiency of freight operation and to explore the potential of an Urban Freight Consolidation Centre (page 25).
7. To provide 'Greener Safer Driving' training to city council employees and continue to offer the training to the city's business organisations (page 25).
8. To facilitate and further promote infrastructure for Ultra Low Emission Vehicles (page 25).
9. To help develop fuelling infrastructure, including shared arrangements between different sectors (eg, gas fuelling, electric charging points) (page 26).
10. To progressively reduce emissions by 50% by 2025 from the Council's fleet operations by reducing vehicle mileage and using the cleanest, lowest emission vehicles (page 26).
11. To reduce harmful emissions from taxis by exploring with operators the potential of cleaner engine taxis (page 26).
12. To support Network Rail on the electrification of the Midland Mainline (page 27).
13. To implement a Sustainable Public Procurement Guide in 2016 (page 27)

Theme 2: Increasing Active Travel

14. To deliver a Phase II 'Connecting Leicester' initiative by 2019 to encourage walking and cycling (page 30).
15. To promote and deliver active travel and smarter choices measures to help replace short car journeys in the city by walking, cycle or bus journeys (page 32).
16. To increase the number of bus trips through, for example, improving our park and ride services, introduction of real time information and SMART and integrated ticketing, removing highway 'pinch points' and implementing Quality Bus Corridor improvements (page 33).
17. To deliver our Cycling Strategy (2014-2024) (page 34)

Theme 3: Improving Traffic Management

18. To improve the management and operation of the highway network through for example, better co-ordinating road works, removing highway 'pinch points', improved traffic enforcement and optimising traffic signals (page 36).
19. To deliver a programme of 20mph zones (page 36)
20. To discount Parking Charges for Low Emission Vehicles (page 37)

Theme 4: Improving Land Use Planning

21. To ensure air quality considerations are embedded into the New Local Plan to be adopted in 2016 (page 38).
22. To implement the Land Use Planning Practice Guidance by 2016 to ensure all land use planning decisions minimise the need to travel by polluting vehicles (page 38)

2. Air Pollution in Leicester

Air pollution occurs when the amount of certain pollutants exceed recommended levels. There are a variety of different pollutants but the main ones of concern are nitrogen dioxide (NO₂) and fine particles (PM_{2.5}). National and European guidelines define levels based on the known effect these pollutants have on human health. Guidelines are set in law and as such we have a statutory obligation to meet them.

In line with most major cities, Leicester exceeds statutory guidelines of 40µg m³ for nitrogen dioxide (NO₂) in several areas of the city. Figure 4 on page 15 indicates the levels of nitrogen dioxide at the monitoring stations. The majority of this pollution comes from road traffic emissions along radial routes into the city and in the city centre. This is of major concern particularly where there are people living along these routes.

Air pollution affects people's health. It is responsible for an increased number of adults dying from stroke, heart disease and lung cancer and for more people being admitted to hospital with breathing and circulatory problems. In 2012 air pollution was estimated to be responsible for 3.7 million deaths worldwide¹ while in the UK it is the 8th leading cause of premature mortality².

In Leicester, national modelling has estimated that 162 deaths were attributable to air pollution in 2010³. This is equivalent to 6.6% of all adult deaths in Leicester. The majority of these deaths were from heart disease and stroke in people who were already ill. Approximately one fifth of all deaths in Leicester, from heart disease and stroke, are due to long term exposure to air pollution.

Although air pollution affects everyone, not everyone is affected in the same way. People who live in more deprived areas are more affected than people living in less deprived areas even if they are exposed to the same levels of pollution. Those who are already in poor health are more affected by pollution than those who are healthy. Air pollution is thus an equality issue and tackling it will help to address Leicester's health inequalities.

Additionally, air pollution impacts on the natural and built environment as there is damage to buildings from particulates. The impact of transport related air pollution is estimated to cost Leicester's economy around £7.2 million per year^{4,5}, for instance from the impacts on employees and through lost productivity to businesses.

Addressing air pollution requires a wide range of interventions, the combination of which are likely to have a significant impact on everyone's health and wellbeing: increasing the number of people walking and cycling rather than driving will both reduce transport emissions and increase physical activity levels – an important public health issue in its own right.

1. WHO (2014) <http://www.who.int/mediacentre/factsheets/fs313/en/>

2. IHME <http://ghdx.healthdata.org/global-burden-disease-study-2010-gbd-2010-data-downloads>

3. PHE 2014 Estimating local mortality burdens associated with particulate air pollution. PHE: London

4. Ricardo-AEA: LestAir – Low Emission Strategy: Business and Implementation Plan (2014)

5. £7.2m derived from the total NO_x and PM emissions generated for traffic from the whole of the city, in 2011, using Ricardo – AEA emissions model and Leicester and Leicestershire Integrated Transport Model. The emissions were used in the DEFRA damage cost calculator (referred to as ICGB within the LESTAir report).

To improve air quality, it is important to establish what the important sources of nitrogen dioxide are, so that cost-effective measures can be put in place to tackle these. A source apportionment exercise has been carried out to aid the targeting of measures in this Action Plan.

Using our AIRVIRO dispersion model, we worked out the total tonnes of nitrogen dioxide emitted by various sources inside the boundaries of Leicester. This is shown in Figure 2.

b. Point sources – these are single, large sources where the emission is directly surveyed, e.g. large boiler house chimneys and industrial sources.

Mobile Sources:

c. Traffic emissions – these are derived from Leicester and Leicestershire Integrated Transport Model (LLITM) and are a calculation based on traffic flows, composition, speed etc. on all the many road links within the City.

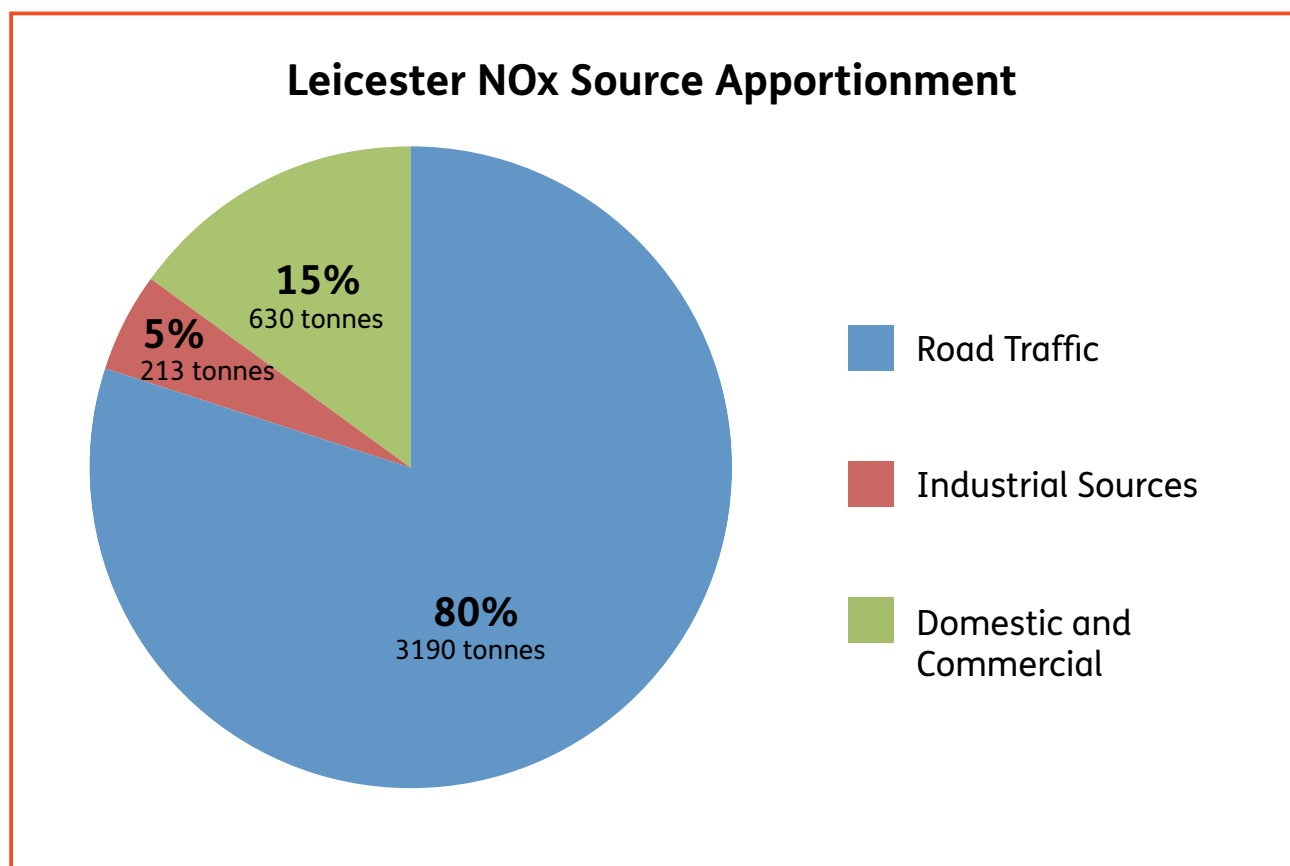


Figure 2: Leicester NOx Source Apportionment.

Figure 2 shows the estimated emission in tonnes of NOx within Leicester, broken down by type of source:

Fixed sources, comprising:

a. Area Sources – aggregated emissions from areas of small fixed sources, i.e. areas of housing, light industry, commercial and public sector premises.

External Background:

d. In addition, the NOx which we measure includes background emissions brought in from sources outside the City (e.g. the M1 motorway, the West Midlands conurbation etc.), which are therefore not included in Leicester's total 'inventory'.

It can be seen that emissions from traffic comprise around 80% of the total City inventory. Background concentrations

generated from non-transport sources are largely outside our direct ability to influence significantly. Notwithstanding this we can exert significant influence over transport emission sources both at our air quality monitoring stations and in the wider area. Traffic emissions, are therefore by far the most important issue to address in this Air Quality Action Plan.

To refine our targeting of interventions to deal with traffic emissions, we then established the relative emissions of nitrogen dioxide from various types of traffic at monitoring sites on key road links, as shown in Figure 3. This was carried out by using Defra's methodology provided in its Local Air Quality Management: Technical Guidance (2009), box 7.2⁶. The methodology uses Leicester's air quality monitoring data, annual traffic data obtained from the Department for Transport (DfT) traffic counts and background maps (NO_x and NO₂ maps) provided by Defra.

It is also important to note (in contrast to Figure 2) that the classified emissions (coloured bars) in Figure 3 only represent the emissions from the traffic actually passing a point on each road link selected. Some of the traffic emissions measured at each point will originate from other roads within the City, i.e. in the 'background' emissions shown in Fig. 3, which are non-specific to each road link (grey bars). While the relative contribution from traffic varies from road to road in Leicester, the emissions from diesel vehicles are predominant on each link. The highest source of emissions from buses is at Melton Road. Motorcycles and petrol LGVs were the smallest contributors of NO₂ emissions. The direct actions proposed in this plan to reduce transport emissions and the indirect impacts these actions will have on background transport emission levels are considered significant enough to address air quality targets.

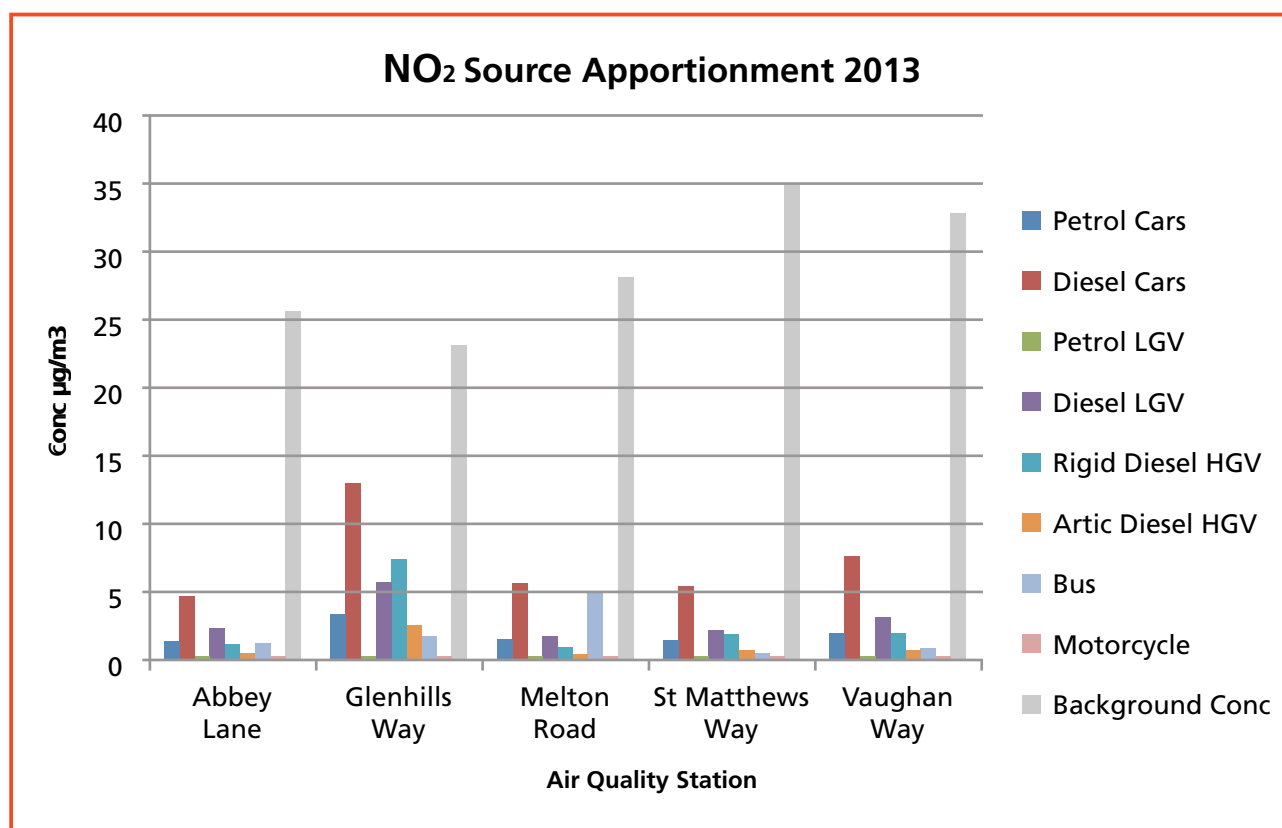


Figure 3: NO₂ Source Apportionment 2013

6. https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/69334/pb13081-tech-guidance-laqm-tg-09-090218.pdf

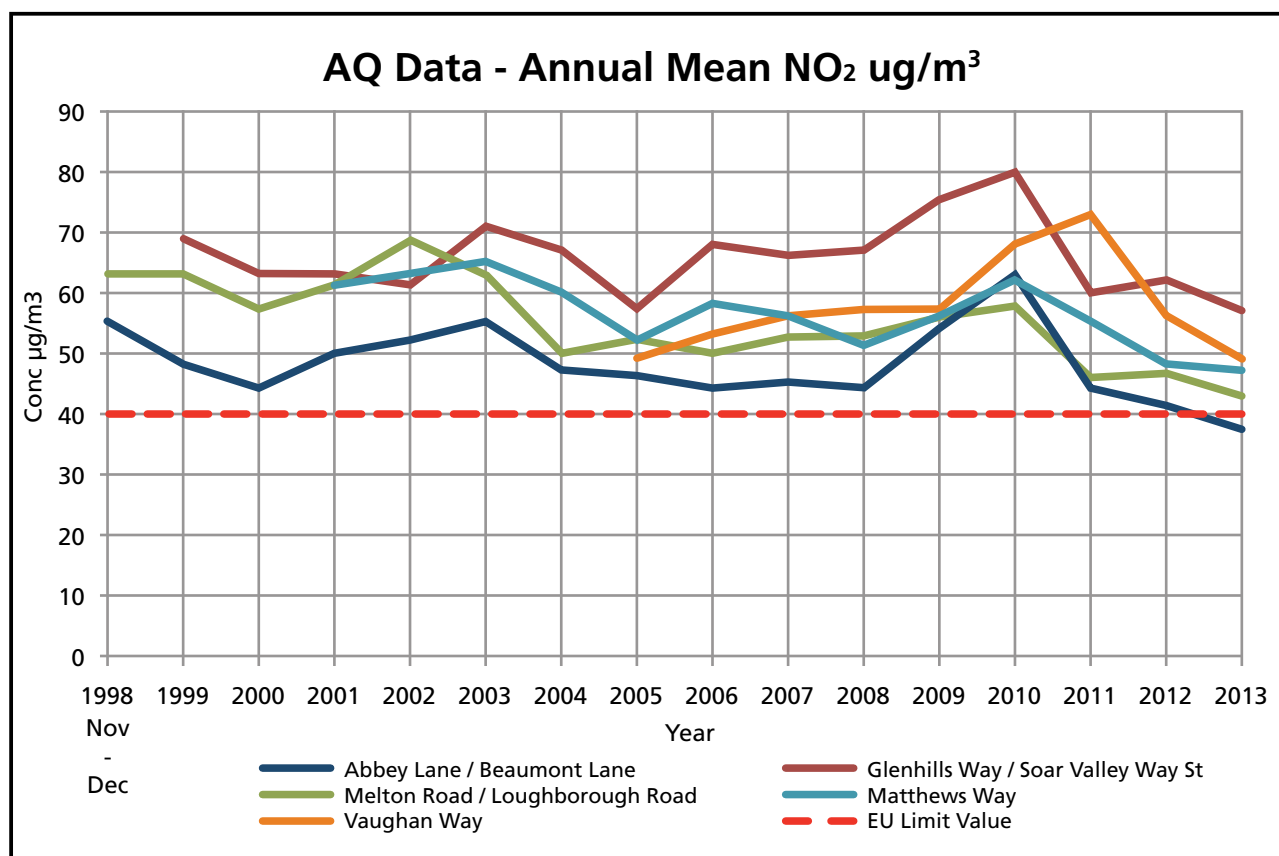


Figure 4 Air Quality Annual Mean Values in Leicester (1998-2013)

Figure 4 shows the Air Quality Annual Mean Values for Leicester between 1998 and 2013. Air quality levels between 1998 and 2008 were above EU target levels. However, between 2008 and 2010/2011 levels increased at all sites but all have fallen to 2013. Levels of nitrogen dioxide at four of the five main sites on Leicester's strategic road network continued to exceed EU targets in 2013 but levels at the Abbey Lane site dipped slightly below target. Annual mean values at all sites can fluctuate from year to year, for example, due to weather.

We have used Defra's Emission Factor Toolkit⁷ to predict the proportion of emissions of NO_x emitted for different

classes of vehicles for 2021. The toolkit uses nationally modelled data to represent 'best' estimates for NO_x emissions. The Emission Factor Toolkit uses DfT predictions to take into account the future changes in traffic activity (such as vehicle flows and vehicle type and road composition) and the expected emission reductions for NO_x and primary NO₂ for vehicles (both new and old). It does not take into consideration any local schemes designed to improve air quality. Our predictions show that diesel cars will continue to be the largest source of NO_x in 2021.

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

3. Developing an Action Plan

The main causes of air pollution in the city that are potentially controllable to any significant degree relate to road traffic emissions as set out in the previous section. To develop a set of actions that can tackle this problem we have conducted analysis of a range of potential transport related options that are likely to have the most beneficial impact over the plan period. Alongside this we have also considered other potential actions that may not necessarily deliver the greatest impact but nevertheless are complementary to other more significant actions. These include actions not only focussed on lower impact transport measures but also related to the land use planning system.

The Low Emission Strategies for Transport (LESTAir) Project

LESTAir was a Defra funded project, (see http://consultations.leicester.gov.uk/city-development-and-neighbourhoods/air_quality - Supporting Documents), carried out to identify and assess best actions to help us meet the 2015 European Union legislation Limit Values on air pollution.

The project aimed to:

- a) Identify a range of potential interventions to reduce transport emissions through extensive consultation with stakeholders and partners
- b) Carry out air quality impact modelling on the identified interventions
- c) Carry out a cost benefit analysis of the interventions
- d) Identify a 'preferred package' of interventions based on cost benefit analysis and air quality impact modelling.

The project was carried out (using the Defra Emission Factor Toolkit⁸ and the Leicester and

Leicestershire Integrated Transport Model [LLITM]) by analysing the volume, speed, type and vehicle emissions of traffic within Leicester and using this information to model what the amount of vehicle emissions in the future are likely to be. Analysis of traffic in 2011 was used as a baseline for future projections.

The type and amount of emissions from transport is regulated by European Union emission standards directives. Euro 5 standards apply to the sale of new cars and vans from 2011 and made the introduction of particle filters for diesel cars obligatory. However it is generally recognised that Euro 5 standards did not have the intended impact on emission reduction. Euro 6 sets lower emission targets and will be applied to all new cars and vans from September 2015.

Stakeholder Engagement

A key element of the LESTAir project was engagement with local stakeholders; both internal to the City Council and external (see http://consultations.leicester.gov.uk/city-development-and-neighbourhoods/air_quality. Technical papers 1,2,3, & 4).. Engagement workshops were held, complemented by a number of bi-lateral meetings with stakeholders. As part of this engagement exercise a long list of measures were considered as potential actions for the Air Quality Action Plan. An emissions assessment and a cost benefit analysis of these measures were also evaluated. The measures that had the most benefit are presented in Table 1. We will continue to work closely with stakeholders in delivering the action plan as set out in Section 4.

Key Findings

The 'Do-nothing' forecast

The 2011 modelled transport emissions, using the Defra Emission's Factor Toolkit and

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

LLITM, (and which type of vehicles they came from – ‘source apportionment’) were used as a baseline to project future emissions in 2016 if no particular air pollution reduction measures were carried out. Such a ‘do-nothing’ forecast relied solely upon emissions being reduced due to new vehicles meeting EU emission standards. This confirmed the dominant role that heavy and light diesel vehicles play in contributing to air pollution.

The total reduction in NO_x from all categories of vehicles between 2011 and 2016 was modelled to be 23.5% and 20% for fine particles (PM_{2.5}). This was based on the assumption that Euro 6 standards, when implemented, achieve their anticipated emission reductions. NO_x reductions fall by

only 7.5% if Euro 6 standards fail to improve on Euro 5 standards. In order to ensure compliance with NO₂ limit values across the AQMA, a reduction of 67% in transport related NO_x emissions is needed.

The ‘preferred package’

The preferred package consists of potential measures to reduce emissions grouped into three strategies: a bus emissions strategy, a freight strategy and low emissions behaviour strategy (Table 1). Within each strategy are several individual measures. All measures use the modelled 2011 baseline to forecast emissions to 2016 and assume that Euro 6 vehicles will achieve their full anticipated impact.

Table 1: Preferred package of interventions with key assumptions

Measure	Descriptions
Bus emissions strategy	
Bus only city centre low emission zone	All buses not meeting the Euro 4 standard not permitted within the inner ring road
Bus retrofit	All buses not meeting the Euro 4 standard to undergo a SCRT ⁹ retrofit.
Gas bus scheme	Gas buses on the city’s northerly and easterly corridors.
Managing freight emissions	
Delivery and service planning	Assume 20% of business in area involved leading to a 15% reduction in traffic for this group and an overall 3% reduction in freight traffic.
Ecostars/Eco driving	Roll out of driver training. Assume 50% of the fleet take up the scheme leading to a 6% reduction in fuel use for this group and an overall 3% reduction in emissions.
HGV compressed natural gas (CNG) fuel scheme	Assume the CNG scheme is linked to the bus depot and that 30% of all HGVs are gas using the same corridor as gas buses.
Low emission behaviours	
Electric vehicle (EV) strategy for cars and vans	Assumes a target of 3% of all cars and vans being EV. Implementation includes charging infrastructure.
Smarter choices	Assumes a target of a 3% reduction in all trips by car.

9. A SCRT retrofit is converting nitrogen dioxides with the aid of a catalyst into diatomic nitrogen, N₂ and water, H₂O.

Further measures as part of the preferred package which are unable to be modelled to encourage low emission technologies and behaviours include:

- Planning Policy – to ensure that low emission issues are considered fully in the land use planning system; and
- Procurement (Sustainable) – using the public sector procurement powers to support the uptake of low emission technologies

Cost benefit analysis

The cost benefit analysis included a calculation of the net present value, capital and operating costs and, abatement and damage cost savings for all identified measures. The bus strategy has the greatest benefit to cost ratio of the three strategies whereas gas buses and electric vehicles had the greatest individual measure benefit to cost ratio. The likelihood of grant funding being available to support bus retrofitting increases the benefit to cost ratio of this measure. Overall the preferred package of measures is estimated to have a twofold benefit to cost ratio.

Emission reductions

The bus emission strategy and within it the central area low emission zone were modelled as achieving the greatest emission reductions. These were an anticipated 40% and over 50% reduction in NO_x and PM_{2.5} bus emissions respectively. Despite the impact on bus emissions, modelling showed that the preferred package of interventions would not achieve the 67% reduction in NO_x required in order to comply with EU guidelines.

Further measures

As the identified packages of measures in Table 1 were not anticipated to achieve compliance with EU legislation, further modelling of alternative interventions was carried out (Table 2). These were modelled to 2021 as engine technology is assumed to have improved compared to 2016 standards and advances with the following scenarios could be more realistic in 2021, than 2016.

The scenarios set out in Table 2 were modelled separately to actions presented in Table 1. Both ultra-low emission zone scenarios were modelled as either meeting or being close to achieving compliance (i.e. meeting EU standards of 40µm³) by 2021. The gas vehicle scenario was also modelled as being close to achieving compliance by 2021. However introducing an ultra low emission zone for all vehicles would have significant costs, particularly regarding implementation, enforcement and acceptability.

Conclusion

The LESTAir project provided detailed information on potential emission reductions, implementation costs and benefit to cost ratios on a series of potential measures to reduce air pollution in Leicester. Whilst the identified package of measures was not anticipated to achieve EU air pollution compliance levels by 2015, further modelling conducted presented in Table 2 showed that we would just meet compliance levels by 2021 for the Ultra Low Emission Zone scenario for all vehicles.

Table 2: Further modelled measures to 2021

Scenario	Description
Ultra-low emission zone: central area	All buses and HGVs not meeting Euro 6 standard not permitted within the inner ring road
Ultra-low emission zone: cars	As above but to include diesel vans and cars
Gas 2021	All buses and HGVs within the air quality management area to be fuelled with biomethane gas

Table 3: Amendments to the Preferred Package of measures

Measure	Amended Description
Bus emissions strategy	
Bus only city centre low emission zone	The first phase is initially focussed on the new Haymarket Bus Station and St Margaret's Bus Station. The low emission zone can be extended as necessary and practicable. An initial standard of Euro IV buses is proposed.
Gas Buses	To work with our partners to investigate, by 2016, the feasibility of introducing Gas Buses

Table 4: Amendments to the further modelled measures to 2021

Scenario	Amended Description
Ultra-low emission zone (ULEZ): central area	An ULEZ for all vehicles in the central area to 2025
All Gas Buses by 2021	We will first need to investigate the feasibility of introducing gas buses for Leicester (see Table 3).

Defra have updated their projections¹⁰ based on modelling for NO₂ compliance for Leicester, as like many other major towns and cities, full compliance with the annual NO₂ limit was not been achieved by 1st January 2015. Defra now indicates that compliance with the EU NO₂ limit values of 40µg m³ will be met, only marginally, by 2025 for Leicester. The projections reflect the up to date assumptions on the performance of modern diesel cars and older petrol cars but does not take into consideration any specific local schemes designed to improve air quality. However, this projection indicates that the NO₂ limit value will only just be achieved and may, in fact, may not be achieved if certain assumptions made in the Defra modelling process, that determines predicted compliance levels, are not met. Further measures are therefore required as set out in our Action Plan (see Section 4)

The LESTAir project has been used to help develop our air quality action plan so that

Leicester can meet its legal requirements at least by 2025 but perhaps more importantly so that it will have a significant impact on the health of the local population.

Taking LESTAir forward

The LESTAir project sets out a preferred package of measures. However, in taking this forward to develop our action plan we have further assessed whether the LESTAir preferred package for measures (Tables 1 and 2) are feasible and appropriate for Leicester. The tables above (Tables 3 and 4) present the measures and scenarios which have been updated from the LESTAir project to be taken forward into the Action Plan.

Other complementary measures

There are a range of other measures that can be adopted for inclusion in the Action Plan to help achieve EU compliance of 40µg m³ for NO₂ by 2025.

10. http://uk-air.defra.gov.uk/assets/documents/no2ten/140708_NO2_projection_tables_FINAL.pdf

Broadly there are three groups of complementary actions that will be pursued. These are measures which:

1. will build upon what we are already doing - including measures from our third Local Transport Plan and other current transport related initiatives;
2. will or have been developed following stakeholder consultation; these include those from the LESTAir long list of measures; and
3. Other measures that have been identified that could reduce emissions.

Examples of these complementary measures in our Action Plan (see Section 4) are:

Building upon what we are already doing:

- To encourage walking, cycling and the use of public transport, for example through delivering our 'Connecting Leicester' initiative and Quality Bus Corridor improvements. Evidence suggests that an effective way of reducing air pollution is to promote active travel such as cycling, walking and using public transport. Doing this also helps to create other health benefits.
- Traffic management improvements, for example to improve the management and operation of the highway network and to deliver a programme of 20mph zones
- Ensuring that the land-use planning system plays a central role in managing the environmental impacts of new development and contributes to protection and long term improvement of air quality.

Stakeholder Consultation:

- Reducing our vehicle fleet emissions through reviewing fleet options
- Measures for taxis – to reduce emissions from taxis by exploring the potential of cleaner engine taxis.

Other Measures:

- Lobbying and Working with Central Government – Whilst we are in an ideal position to monitor air pollution and manage direct interventions, some important areas are not within our control and need to be addressed at a national level. Where we are unable to control a large proportion of air pollution, we must work with and where necessary lobby, Central Government to achieve improvements.
- To support Network Rail on the electrification of the Midland Mainline.

Whilst these complementary measures alone would not be sufficient to meet EU air quality objectives by 2025 taken together with the actions identified through the LESTAir project, they should significantly contribute to reductions in nitrogen dioxide and particulate matter.

4. ACTION PLAN

Reducing air pollution requires a coordinated approach across the city so that all partners with potential influence are engaged, building on existing knowledge and expertise. This action plan targets the most polluting transport related sources, as well as proposing complementary supporting actions, with the overall aim of reducing pollution levels to minimise harm to health. The actions that are proposed in this section are drawn from our LESTAir project, stakeholder consultation and other complementary initiatives as set out in section 3. These range from lobbying central government to remove incentives that currently favour diesel engines, to local initiatives aimed at influencing the choices individuals make about how they travel and the modes of transport used.

We have grouped the proposed actions into four themes:

- Theme 1: Reducing Transport Emissions
- Theme 2: Increasing Active Travel
- Theme 3: Improving Traffic Management
- Theme 4: Improving Land Use Planning

The timescales, delivery partners and potential air quality impacts of each of the actions set out within the themes are summarised in a table at the end of each theme section.

The potential impact of each action has been categorised as:

- Low: Some effect in reducing air pollution
- Medium: Measurable effect in reducing air pollution but insufficient to achieve EU targets
- High: Significant impact in reducing air pollution contributing towards meeting EU targets

THEME 1: REDUCING TRANSPORT EMISSIONS

ACTION 1: TO LOBBY AND WORK WITH CENTRAL GOVERNMENT TO REDUCE EMISSIONS FROM THE MOST POLLUTING VEHICLES

Whilst the proposed actions in our Plan are to be carried out directly by the council and its partners will have a significant effect in reducing pollution, our modelling shows that the largest source of NO₂ is from diesel cars (see figure 3).

This is a national problem that needs to be addressed, but it is outside of our control. Central Government can tackle this issue directly for instance through initiatives such as tax regimes that are favourable to the full range of low emission vehicles, better promotion of low emission vehicles as an alternative to diesel cars and also by encouraging innovation in diesel engine specifications to reduce polluting emissions. In addition Central Government need to continue to offer funding opportunities, facilitate best practice advice and cascade national initiatives locally to help local authorities and partners, such as local bus operators, to deliver projects that reduce emissions. We will lobby and work with Central Government to take action to reduce air pollution in Leicester.

ACTION 1: To lobby and work with Central Government to introduce national measures to progressively reduce polluting emissions from diesel vehicles, for example through fiscal regimes and disseminating national initiatives locally, such as promoting the uptake of low emission vehicles.

ACTION 2: BUS RETROFITTING

Whilst we will continue to encourage the introduction of a replacement newer and cleaner bus fleet in Leicester, we have recently started to work with bus operators to introduce retrofit solutions to reduce emissions from older buses.

The 'Leicester Bus Emission Study' 2012/13 determined that the A607 Belgrave Road/ Melton Road/A6 Loughborough Road corridor had the highest contribution from buses to NOx emissions; accounting for between 33% and 40% on key road sections. It concluded that retrofitting Euro III buses with SCRT technology would have a significant impact on the corridor's air quality.

In partnership with Arriva Midlands and Centrebus the City Council submitted two successful bids to the Department for Transport's (DfT) Clean Bus Technology Fund and Clean Vehicle Technology Fund. In total, 37 Euro III buses that operate services on the Melton Road and Belgrave corridor are being retrofitted with Selective Catalytic Reduction Technology (SCRT) equipment to lower emissions to Euro V standard. The current programme of retrofitting will be complete by Summer 2015.

It is predicted that this action will reduce NO2 concentrations and could lead to the declassification of the corridor as an Air Quality Management Area by 2016 as 67%-75% of buses will be SCRT retrofitted. Transport for London reports good results from similar initiatives at Putney High Street, where some 40% of buses have SCRT. Results here show sustained reductions in ambient NO concentrations of c.16%.

Further retrofitting programmes will be pursued when opportunities arise. This action will help the bus operators comply with the requirements of the proposed Bus Low Emission Zone Action (see Action 3).

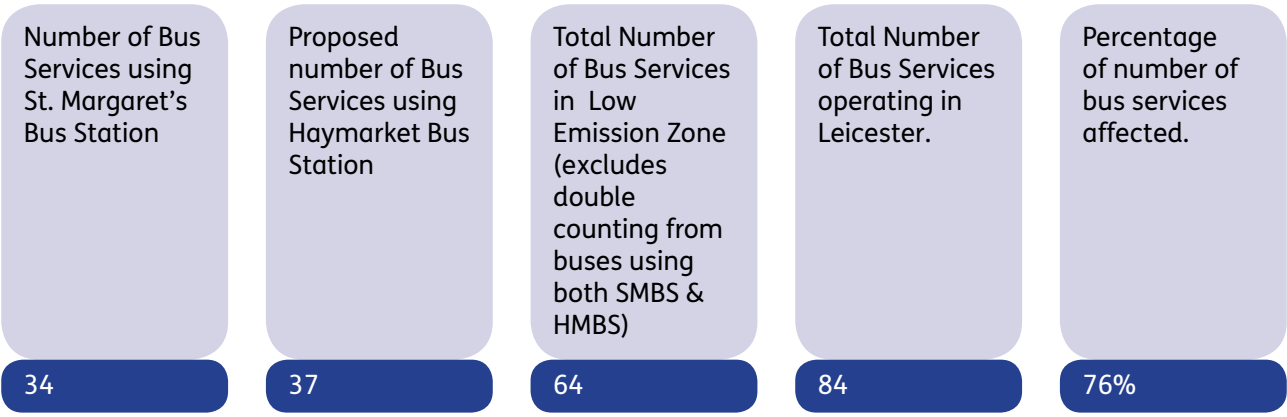
***ACTION 2:** To retrofit 37 Euro III buses with clean engine technology by Summer 2015. We will continue to seek further funding to complete a bus retrofitting programme.*

ACTION 3: LOW EMISSION ZONE AND ULTRA LOW EMISSION ZONE

A Low Emission Zone is a geographically defined area where the most polluting vehicles are restricted or discouraged from entering. The aim is to improve air quality by setting an emissions based standard for the vehicles within the area. Therefore, this accelerates the replacement of that particular vehicle fleet to cleaner vehicles with lower emissions.

It is proposed to introduce a Low Emission Zone, on a phased approach, working with bus operators. We intend to introduce a Euro emission standard of Euro IV or equivalent to remove the older more polluting vehicles from the bus fleet. The restriction will apply to buses accessing the new Haymarket Bus Station, then to implement restrictions to buses accessing St. Margaret's Bus Station. It is proposed that the Low Emission Zone would be enforced through a Traffic Regulation Condition issued by the Traffic Commissioner. By focussing on the bus stations we will involve many of the buses operating across the city as well as focussing on an area of high traffic activity. 76% of bus services pass through either St. Margaret's Bus Station and / or the new Haymarket Bus Station (see Table 5). As a significant number of buses use the bus stations, they are also travelling through other parts of the city which would have a positive impact on reducing road traffic emissions particularly on the most polluted radial routes.

Table 5: Number of Bus Services affected by the Low Emission Zone



Leicester's composition of euro emission vehicle standards for the three largest bus fleets, Arriva, First and CentreBus (as at November 2014) shows that all three bus operators have over half of their fleets at a Euro III emission standard or less. Whilst we are currently working with Arriva and CentreBus to support retrofitting of 32 buses and 5 buses respectively, 65% of First's bus fleet is at a Euro III emission standard or less. We will work together with the bus companies to identify funding opportunities, to deliver the Low Emission Zone through measures such as bus retrofitting. We have experience of working with Arriva and CentreBus in securing external funding for the Bus Retrofit measure and will continue to collaborate with all bus operators to support improving their euro emission vehicle standards.

The Low Emission Zone could be developed further through implementation of an Ultra Low Emission Zone for all vehicles that are either zero or low emission. This would reduce air pollutants from all modes of transport, particularly those with the greatest health impacts, as well as stimulating the low emission vehicle market by increasing the proportion of low emission vehicles. However as stated in Section 3, introducing an ultra-low emission zone would have significant costs particularly regarding implementation, enforcement and possible acceptability. We will consider a range of options for implementation that may reflect the prevailing position at that point in time.

ACTION 3: To introduce a Low Emission Zone focussed initially on buses using the new Haymarket Bus Station and St. Margaret's Bus Station, by 2017 and work towards an Ultra-Low Emission Zone (ULEZ) for all vehicles over the period to 2025.

ACTION 4: INVESTIGATING THE FEASIBILITY OF INTRODUCING GAS BUSES

Switching to alternative fuels such as gas could have very significant air quality benefits. Gas powered vehicles emit about half the amount of nitrogen oxides (NOx) as petrol and diesel vehicles and emit virtually no particulate matter. Any longer term Low Emission Zone targets can be seen as a driver for investment in such low emission vehicles. Arriva, GoAhead and Stagecoach have all invested in gas buses, and enjoy a 6p per km Bus Service Operators Grant (BSOG) rebate if certified biomethane is used¹¹. All operators report operational cost benefits that outweigh the cost of introducing gas buses.

We have secured funding from Defra to investigate the feasibility of introducing gas buses in Leicester working with operators. The intention is to work towards the introduction of gas buses in the next five years with a longer term ambition to complete the replacement of the bus fleet with identified types of Low Emission Vehicles, including gas buses.

11. AEA Ricardo (2014) LESTAir Low Emission Strategy: Business and Implementation Plan.

***ACTION 4:** To work with our partners to investigate, by 2016, the feasibility of introducing Gas Buses.*

ACTION 5: ENCOURAGING FLEET REPLACEMENT OF LOW EMISSION VEHICLES FOR BUSES, TAXIS AND FREIGHT OPERATORS

We will continue to work with bus, taxi and freight operators through our partnerships to encourage decisions on their future investment and fleet replacement programmes to include replacing their vehicles with low emission vehicles at every opportunity. We will engage with the operators to identify suitable opportunities for their fleets.

***ACTION 5:** To encourage bus, taxi and freight operators to complete replacement of their fleets with Low Emission Vehicles by 2025.*

ACTION 6: IMPROVING THE EFFICIENCY OF FREIGHT OPERATIONS & EXPLORING THE POTENTIAL OF AN URBAN FREIGHT CONSOLIDATION CENTRE

Freight vehicles, both heavy and light duty, are a significant source of emissions across the city. Working with the freight industry to improve efficiency of its operation in the city will help reduce emissions and improve economic competitiveness.

Implementation of demand side management of freight deliveries can be done through delivery and servicing plans (DSPs)¹². These are the freight industry equivalent of personal travel plans and could be developed alongside business site travel plans. Through the DSP process freight deliveries to a site are reviewed and actions to consolidate and reduce these are developed. This can be developed for a single organisation or a group of organisations in a contained location such as a business park.

It can also be used on deliveries between key public sector organisations in the city. This action is particularly relevant for key sections of the outer ring road such as the south west sector. The concept was developed by Transport for London and they were able to reduce delivery trips to sites by 15-20%. We will work with the freight industry to identify options and pilot schemes to improve efficiency of its operation in the city to help reduce emissions and improve economic competitiveness.

There are a range of measures that delivery fleets can implement to improve the environmental performance of their fleets including eco-driving, better servicing and maintenance and low emission vehicles. There are various schemes in operation across the country working with operators to encourage the uptake of these measures, such as Ecostars programme. Nottingham has recently launched an EcoStars Fleet Recognition scheme.

As a long term action, a freight urban consolidation centre will be considered. Freight consolidation centres are distribution centres situated close a strategic road network where HGVs would deliver goods, for onwards dispatch in smaller, greener vehicles. The development of such a scheme has been implemented for example in Bristol and Heathrow.

The proposal would need to establish a central base on the outskirts of the city whereby individual consignments or part loads are identified for delivery into the city centre. Further work is required to engage with suitable partners from the freight haulage industry to implement the project as well as identifying sources of funding to implement the project and ensuring the proposal is cost effective and affordable. Experience from other freight consolidation centres has shown that it requires wide scale consultation to ensure that it is effective for both suppliers and customers.

12. AEA Ricardo (2014) LESTAir – Low Emission Strategy: Business and Implementation Plan (page 7)

ACTION 6: *To work with the Leicester's Freight Quality Partnership to identify options to improve efficiency of freight operation and to explore the potential of an Urban Freight Consolidation Centre.*

ACTION 7: GREENER SAFER DRIVING

Driving skills and behaviour can be learnt and modified to substantially improve fuel efficiency and reduce wear on tyres and brakes. Short car journeys cause up to 60% more pollution per mile than longer journeys. This is because an engine does not run efficiently and the catalytic converter does not work properly until the engine is hot. Improved efficiency of drivers of all vehicles is of benefit to air quality. We currently ensure that all drivers undergo training to improve safe and fuel efficient driving skills. We will also continue to commit to offering training to the city's business organisations.

ACTION 7: *To provide 'Greener Safer Driving' training to city council employees and continue to offer the training to the city's business organisations.*

ACTION 8: INFRASTRUCTURE FOR LOW EMISSION VEHICLES

The government classification of an ultra low emission vehicle is a vehicle that produces 75g or less of CO₂ per kilometre from the tailpipe. Nationally, electric and hybrid electric (non-plug-in) car registrations have been growing at an exponential rate since 2004. Being able to run in electric mode in populated urban environments can significantly reduce the levels of air pollutants.

Leicester's Climate Change Programme of Action has an end of 2015 target for 30 electric vehicle charge points to be installed in the Leicester area. Recent installations have brought the current total up to 24

charge points. These are found at the Newarke and Dover Street car parks in the city centre, as well as the three park and ride sites serving Leicester; Meynell's Gorse, Birstall and Enderby. All these sites feature 'fast' chargers, which can refill a battery in between 2 and 4 hours. All sites are to become accessible by a pay-as-you-go system, permitting use on a casual basis. At present this is only available at Enderby and Meynell's Gorse park and rides, with other sites still operated by membership schemes.

The council will respond to demand by installing more charging points and requiring their installation on large developments, and will support these installations with an appropriate publicity programme. Improving infrastructure for low emission vehicles is key to encouraging the uptake of alternatively fuelled vehicles. Additionally, we will continue working with government and manufacturing partners to enable the uptake of electric cars to help reduce the number of diesel cars on our roads.



Example of an Electric Car and Charging Point

ACTION 8: *To facilitate and further promote infrastructure for Ultra Low Emission Vehicles.*

ACTION 9: DEVELOP SHARED FUELLING INFRASTRUCTURE

The Government is committed to supporting the development of low and ultra low emission alternatives across all vehicle sectors. The lack of publicly accessible gas refuelling infrastructure has been identified as a significant barrier to the increased uptake of cleaner gas fuelled HGVs.

The establishment of shared fuelling infrastructure for HGVs and other modes of vehicular transport could create the right conditions for bus / HGV and other private sector companies to invest in new technologies and deliver a breakthrough in the uptake of gas powered vehicles and electric vehicles.

We will investigate the possibilities of establishment of shared use facilities as opportunities arise and through studies such as our gas buses study (Action 4).

ACTION 9: To develop fuelling infrastructure, including shared arrangements between different sectors (eg, gas fuelling, electric charging points).

ACTION 10: REDUCING EMISSIONS FROM CITY COUNCIL FLEET

We currently have a fleet of 870 vehicles, including many diesel LGVs and HGVs that are purchased under a procurement framework with Ford Motor Company. We have recently made changes in the way we operate our vehicle fleet to reduce vehicle mileage by installing a programme of trackers on our vehicles. This provides monitoring information and analysis of driver behaviour which can help encourage improved driver performance that has been demonstrated to save fuel and reduce emissions. Moving forwards, we aim to lead by example to reduce emissions further and there are a number of alternative technologies on the market that have lower emissions than petrol or diesel. We are currently reviewing

the size, procurement, fleet composition and operation of the vehicle fleet. By halving emissions from the fleet over the plan period we can demonstrate and lead by example to other large fleet operators in the city.

ACTION 10: To progressively reduce emissions by 50% by 2025 from the Council's fleet operations by reducing mileage and using the cleanest, lowest emission vehicles.

ACTION 11: REDUCING EMISSIONS FROM TAXIS

Reducing emissions from taxis would make an important contribution to improving air quality in the city. Currently, taxi engine emissions must meet a minimum Euro III standard. In 2012, new policy measures for taxis came into force. These are:

- Vehicle age policy - if a taxi has reached an age of 11 years, we would not renew their licence. Therefore there is a continual update of the taxi fleet;
- Offering a financial incentive of a half price licence fee to taxi drivers if their vehicle meets a minimum Euro 5 standard or above; and
- Testing vehicles twice a year for Emission check (above statutory requirement) to ensure a high standard of vehicle.

Air quality issues can be further addressed by encouraging the use of alternative low emission fuels. We want to work with taxi operators to identify future opportunities to encourage cleaner engine taxis for Leicester.

ACTION 11: To reduce harmful emissions from taxis by exploring the potential of cleaner engine taxis.

ACTION 12: REDUCING EMISSIONS FROM RAIL

The electrification of the Midland Mainline by Network Rail, which will include Leicester, is expected to be complete by 2020. This will enable the current fleet of diesel trains to be replaced by electric ones, therefore, there will be a substantial reduction in air pollution attributable to diesel trains in the area. We will continue to make working with Network Rail on this project a high priority.

ACTION 12: To support Network Rail on the electrification of the Midland Mainline.

Services (Social Value) Act 2012 came into force on the 31st January 2013. The Act, for the first time, places a duty on public bodies to consider social value, including environmental considerations, ahead of a procurement exercise. This legislation and guidance encourages the public sector to support the uptake and deployment of low emission vehicles through sustainable procurement decisions.

We will develop a Sustainable Procurement Guide to set out how Leicester City Council will deliver Sustainable Procurement to improve air quality.

ACTION 13: To implement a Sustainable Public Procurement Guide in 2016.

ACTION 13: SUSTAINABLE PROCUREMENT GUIDE

The purchasing power of the public sector is significant in Leicester. The Public

Table 6: Summary of Reducing Transport Emissions Actions

Action	Lead Partners	Funding	Timescale	Air Quality Impact
1. To lobby and work with Central Government to introduce national measures to reduce polluting emissions from vehicles	Leicester City Council	Staff time	Ongoing	High New policy/fiscal controls over diesel vehicles applied at this level would have a fundamental positive impact on air quality.
2. To deliver a Bus Retrofitting Programme	Leicester City Council; Bus Companies	External funding bids, Leicester City Council.	Ongoing - initial programme in 2015	Medium Retrofitting a Euro III engine is expected to deliver emission levels lower than a Euro V engine.
3. To introduce a Low Emission Zone for buses and work towards an Ultra Low Emission Zone	Leicester City Council; Bus Companies; Office for Low Emission Vehicles	External funding bids	2017 (LEZ) 2025 (ULEZ)	High The LEZ would have significant impact on air quality focussed on the city centre. The ULEZ would eliminate the most polluting vehicles on our roads.

Action	Lead Partners	Funding	Timescale	Air Quality Impact
4. To investigate the feasibility of introducing Gas Buses	Leicester City Council; Bus Companies; Sefton Borough Council	External funding bids – DEFRA funding bid successful, jointly with Sefton Borough Council.	2016	Low with potential for High impact over time If the project is feasible, then the impact initially would be low as fleets switch from diesel to gas. As the infrastructure develops this would have a significant impact on air quality.
5. To encourage bus, taxi and freight operators to complete replacement of their fleets of Low Emission Vehicles.	Leicester City Council, Bus Companies, taxi and freight operators	External funding bids	2025	High longer term Would reduce harmful pollutants across the city with significant impacts over time
6. To work with the Leicester's Freight Quality Partnership to identify options to improve efficiency of freight operation and explore the potential of an Urban Freight Consolidation Centre.	Leicester City Council; Leicester Freight Quality Partnership; Businesses	External funding bids; Private Sector	2016 (Delivery and Service Plans) 2021 (Freight Consolidation)	Medium Businesses are more efficient in delivering goods as deliveries to sites are reduced which reduces costs and traffic emissions. High Would reduce the number of HGVs using Leicester's road as HGVs are a source for high NOx
7. To provide 'Greener Safer Driving' training to city council employees and continue to offer the training to the city's business organisations.	Leicester City Council: businesses	External funding	Ongoing	Low Teaches techniques to drivers to enable them to drive in a style that is more fuel efficient therefore reducing the CO2 output of the vehicle that is being driven.

Action	Lead Partners	Funding	Timescale	Air Quality Impact
8. To continue to facilitate and further promote infrastructure for Ultra Low Emission Vehicles.	Leicester City Council; Office for Low Emission Vehicles (OLEV)	External funding bids	Ongoing	Low An electric vehicles produces zero tailpipe emissions, therefore can reduce the levels of air pollutants. The potential impact is low, in the short to medium term. As the infrastructure and use of electric cars increase, the impact will be higher.
9. To develop fuelling infrastructure, including shared arrangements between different sectors	Leicester City Council; Office for Low Emission Vehicles	External funding bids	2015	Would encourage the uptake of alternatively fuelled vehicles
10. To progressively reduce emissions from the Council's fleet operations	Leicester City Council;	Leicester City Council; External funding bids	2025	Low Whilst it would be important pathfinder for others over time, it would have low impact directly as given limited vehicle numbers
11. To reduce harmful emissions from taxis	Leicester City Council, taxi companies	Leicester City Council; external funding bids	2015+	Low Taxis are a small proportion of the total vehicle fleet for Leicester (approx. 1-2%)
12. To support Network Rail into the electrification of the Midland Mainline	Leicester City Council; Network Rail	Network Rail	Completed by 2020	Low Leicester Railway Station is not in our Air Quality Management Area, however it would improve air quality within the vicinity
13. To implement the Sustainable Public Procurement Guide by 2016	Leicester City Council	Staff time	2016	Low In would identify additional air quality related contract requirements

THEME 1 CONSULTATION QUESTIONS:

1. Do you agree that we should lobby Central Government to introduce measures to reduce polluting emissions from diesel vehicles?
2. Do you agree that we should introduce a Low Emission Zone, first for buses and then for all vehicles?
3. What else could we be doing with our partners to reduce transport emissions?



Jubilee Square: Example of city centre public realm improvements

THEME 2: INCREASING ACTIVE TRAVEL

ACTION 14: DELIVERING A 'CONNECTING LEICESTER' PHASE II INITIATIVE TO ENCOURAGE WALKING AND CYCLING

Our 'Connecting Leicester' projects aims to improve access for walkers and cyclists on our city centre streets and adjoining neighbourhoods. Walking and cycling have key roles in creating a healthy, vibrant and accessible city.

Examples of our recent Connecting Leicester work include:

- **City Centre Improvements** – We are delivering an improved public realm including continued implementation of pedestrianisation of city centre streets and connecting routes to facilitate further walking and cycling. Twelve streets have recently been improved with a further 4 currently underway or about to start, these amount to a total length of 3330m. The next wave of works is currently being planned and a further 12 streets amounting to 1690m are anticipated to be improved over the next

4 years. These improvements consist of complete reconstruction in pedestrianised areas and footway widening on other streets to enable cycling to be accommodated on joint use footway/cycleways. These improvements are focussed on the pedestrianised retail areas, including around the Market and the Highcross and Haymarket Centres, and linking these areas to the city's extensive heritage assets including the new Richard III Visitor Centre. In addition 2 new public squares have been created at Jubilee Square and at the Cathedral; in both cases connecting paths and cycleways have been incorporated into new public realm.

- **Humberstone Gate East** – As part of a £3.5 million project, part financed by the European Regional Development Fund, a revamp of Humberstone Gate East has been carried out. This has included an improved pedestrian environment with new bus shelters, high quality paving and street furniture. This project has also improved the flow of buses and cut congestion, at the same time making it easier for pedestrians and cyclists to access other nearby destinations. The work carried out will complement the future plans for Haymarket Bus Station.



Artist's Impression of the new Haymarket Bus Station

- **Haymarket Bus Station** - We are investing £13.5million in an ambitious project to build a new, larger and more efficient bus station on the site of the existing station. The new bus station, due to be completed by the end of 2015, will provide more capacity for local buses. Bus services currently use nearby on street bus stops which cause bus queuing and congestion in the area. Funding has been awarded from the Government's Local Pinch Point Fund – a decision that recognises the impact of the scheme will have on reducing bus congestion and improving services for bus users in Leicester.

- **Major highway improvement schemes** include current works to improve connections between the Golden Mile and city centre. Belgrave Flyover has been removed as part of the project which also realigns the existing roads and Belgrave roundabout and creates a pedestrian-friendly walkway from Belgrave Gate to the start of the Golden Mile and an improved environment for cyclists.

ACTION 14: To deliver a Phase II 'Connecting Leicester' initiative by 2019 to encourage walking and cycling.



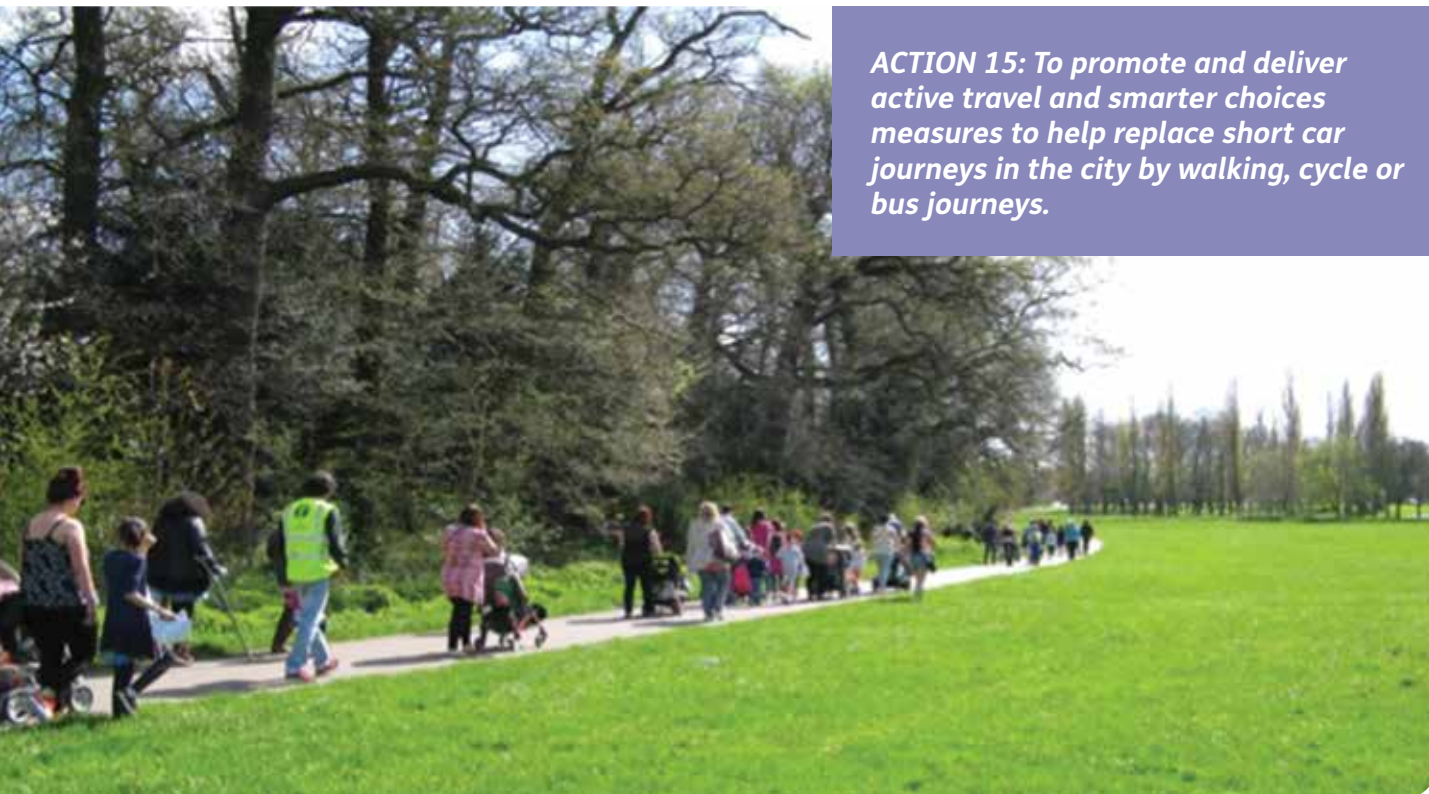
Artist's impression of Belgrave Circle improvements

ACTION 15: PROMOTE AND DELIVER ACTIVE TRAVEL AND SMARTER CHOICES

We will continue to promote and deliver smarter choices and active travel which is currently being delivered through our Local Sustainable Transport Programme. Our programme includes a range of projects and initiatives to encourage people to walk, cycle, use the bus or carshare where it is

suitable for their short journeys. Through this programme we specifically focus on areas of low employment and health deprivation and target those groups who have the most barriers in finding employment. Our measures have also been used to compliment wider transport infrastructure investment in Leicester to encourage greater behavioural change.

ACTION 15: To promote and deliver active travel and smarter choices measures to help replace short car journeys in the city by walking, cycle or bus journeys.



The Ramblers lead on group walks in Leicester's open spaces

Leicester – Fit 4 Business, Local Sustainable Transport Fund Programme:
What we have achieved

- 303 businesses have provided new services, facilities or activities to reduce single occupancy car travel to their business
- 66 schools have provided new services, facilities or activities to reduce single occupancy car travel to their business
- 4300 residential households have received personalised travel planning advice
- 39,669 adults have taken up walking or cycling initiatives

This activity has led to... increase in walking of 21.5% in the LSTF area as opposed to 18.6 % in the rest of city central area.

Increase in cycling of 25.4% in the LSTF area as opposed to 20.3 % in the rest of city central area.

16% decrease in pupils being regularly driven to school by car and a 5% decrease of single occupancy car journeys to work .

ACTION 16: INCREASING THE NUMBER OF PUBLIC TRANSPORT TRIPS

We are also continuing to improve city centre bus infrastructure provision which is being supported by more joint working with the bus companies and users. We are continuing to improve this through our Connecting Leicester initiative, however, further work is being delivered, for example we are continuing to implement our programme of SMART and integrated ticketing and real time bus information. In 2012, we introduced camera bus lane enforcement in the city centre and bus gates to give priority access to bus services, including park and ride services, and improve the environment for bus users in particular. These measures enable buses to offer a credible alternative to the car, thereby achieving a modal shift from cars to sustainable transport. It also has associated air quality improvements and carbon reductions.

In 2012 we were successful in being awarded over £2m from the Department for Transport's Better Bus Area Fund. The joint project between Leicestershire County Council, Leicester City Council and Arriva, aimed to improve bus journey times and reliability, in a bid to increase bus patronage and reduce congestion along the A426 Aylestone Road corridor. This was achieved through bus infrastructure improvements, information and behavioural change, quality improvements to bus services, as well as the delivery of our 'pinch point' programme.

ACTION 16: To increase the number of bus trips through, for example, improving our park and ride services, introduction of real time information and SMART and integrated ticketing, removing highway 'pinch points' and implementing Quality Bus Corridor improvements.



A426 Aylestone Road corridor

ACTION 17: TO DELIVER OUR CYCLING STRATEGY (2014 – 2024)

Cycling has a key role in creating a healthy city with improved air quality. Our very compact urban area is ideal for promoting cycling. Our Cycling Action plan will be delivered in partnership with organisations such as British Cycling, Sustrans, Living Streets and the County Council.

Our Cycling Action Plan includes provision for;

- Continuing to provide led rides throughout the year and child and adult cycle training.
- Hosting the annual Ride Leicester Festival including the Leicester Castle Classic Elite Level racing event and the Leicester Sky Ride mass participation event.
- Providing new segregated and shared surface cycling opportunities in the city centre and linking to surrounding neighbourhoods on arterial routes.

- Providing 3km of new cycleway along the A50 between the city centre and the city boundary and further cycleway facilities along the A6 corridor as part of the Leicester North West Major Transport Scheme 2015 to 2018.
- A further programme of new walking and cycling routes beyond 2016.

We have recently completed a project to improve and increase the use of existing National Cycle Network routes that cross the city north to south (NCN 6) and east to west (NCN 63). These routes included the Great Central Way (South), Forest Way (West) and the Riverside Route (north) now linking to Abbey Park, The National Space Centre and Watermead Park. Most of these cycle routes were unadopted permissive paths and poorly maintained. The work included 6500m² of improved shared-use path, formal adopted as Public Highway and 300+ new direction signs over 38km of National Cycle Network route and connecting links.



Example of new cycling infrastructure improvements.

ACTION 17: To deliver our Cycling Strategy (2014-2024).



Improved Riverside Way Cycling Route 2014

Table 7: Summary of Increasing Active Travel Actions

Action	Lead Partners	Funding	Timescale	Air Quality Impact
14. To deliver a Phase II 'Connecting Leicester' initiative to encourage walking and cycling.	Leicester City Council	Leicester City Council; External funding	Leicester City Council; External funding	Low initially There would be lower exposure to harmful pollutants whilst improving health of people more generally through active travel. Benefits will increase as a comprehensive route network develops
15. To promote and deliver active travel and smarter choices and replace short car journeys in the city by walking, cycle or bus journeys	Leicester City Council; Businesses; Cycling & Walking Organisations bus companies & users	Leicester City Council; DfT,	Ongoing – funding secured to 2015/16.	Low initially The impact on air quality should increase over time, as further investment and actions will encourage a greater modal shift from single occupancy car use.

Table 8: Summary of Improving Traffic Management actions

Action	Lead Partners	Funding	Timescale	Air Quality Impact
16. To increase the number of public transport trips	Leicester City Council, Bus Operators	Leicester City Council; DfT, county council	Ongoing	Low initially The impact on air quality should increase over time, as further investment will encourage a greater modal shift from car use.
17. To deliver our Cycling Strategy (2014-2024).	Leicester City Council; Cycle City partners; Leicestershire County Council	Leicester City Council, external funding	Ongoing to 2024	Low initially The impact on air quality should increase over time, as further investment and actions will encourage a greater modal shift from car use.

THEME 2 CONSULTATION QUESTION:

4. Other than those actions currently in the Action Plan, are there any other actions we could be doing to encourage active travel through walking, cycling and bus journeys?

We will continue to introduce more efficient signalling infrastructure, improve highway signing to ensure that traffic uses the most efficient routes, co-ordinate roadworks to reduce delays and congestion and deliver a 'pinch points' programme, to improve journey times and removing bottlenecks at key junctions.

THEME 3: IMPROVING TRAFFIC MANAGEMENT**ACTION 18: TO IMPROVE THE MANAGEMENT AND OPERATION OF THE HIGHWAY NETWORK THROUGH FOR EXAMPLE, CO-ORDINATING ROAD WORKS, REMOVING HIGHWAY 'PINCH POINTS', IMPROVED TRAFFIC ENFORCEMENT AND OPTIMISING TRAFFIC SIGNALS.**

To help tackle congestion and reduce emissions we have an established Area Traffic Control Centre which helps implement our reducing congestion strategy. This uses IT systems, traffic signal timings and digital car park sign messages to constantly optimise the flow of traffic and ensure safe crossing facilities for cyclists and pedestrians.

ACTION 18: To improve the management and operation of the highway network through for example, better co-ordinating road works, removing highway pinch points and optimising traffic signals.

ACTION 19: INTRODUCTION OF 20MPH ZONES

Since 1999 we have created 39 20mph zones in Leicester. Whilst the primary aim of a 20mph zone is for road safety improvements it can bring about other local environmental improvements including encouraging walking and cycling trips and improving air quality. We will continue our programme of introducing 20 mph zones in residential areas across the city and a further five schemes are planned by the end of 2015. In conjunction with residents, local ward councillors have identified the potential for a further forty zones.

ACTION 19: To deliver a programme of 20mph zones.

ACTION 20: TO DISCOUNT PARKING CHARGES FOR LOW EMISSION VEHICLES

We would like car-owning residents and visitors to Leicester to choose vehicles



Example of a 20mph zone in Leicester (Stephenson Drive area)

that are the least polluting. One way to encourage residents and visitors to think about vehicle emissions is to provide a financial incentive to choose less polluting vehicles, such as electric cars, through the residents' parking and the council owned car parking pricing structures.

There are currently six residents' permanent and two experimental parking schemes in operation in Leicester. A permit costs £25 for residents and lasts for 12 months.

Leicester has over 7,500 off street and 1,300 on-street car parking spaces for public use. In 2014, there were over 860 cars registered as an ultra low emission vehicle in the East Midlands¹³. We would seek funding, for instance, through the government's 'Plugged-in-Places' grant to support and encourage the use of low emission vehicles through introducing more off and on street parking points for electric vehicles.

We will consider making changes to the residents' parking permit schemes and

council owned car parking tariffs, whereby pricing structure would be designed to encourage residents and visitors to use less polluting vehicles. It is proposed that owners of low emission vehicles would be exempt from the cost of a resident parking scheme permit and from parking charges (in council owned car parks). At this stage the details of the scheme would need to be developed further, however, it is vital that a scheme should be easily understandable to residents and visitors and simple for the Council to administer.

The impact of these proposals in isolation would be low but when considered alongside other incentives, such as lower road car tax charges and lower running costs, this could influence the choice of vehicles purchased.

ACTION 20: To Discount Parking Charges for Low Emission Vehicles.

13. <https://www.gov.uk/government/statistical-data-sets/veh01-vehicles-registered-for-the-first-time> (Table VEH0130)

Action	Lead Partners	Funding	Timescale	Air Quality Impact
18. To continue to improve the management and operation of the highway network	Leicester City Council	Leicester City Council; External funding bids	Ongoing	Low Improvements will have localised impacts but over time will contribute to improving effectiveness of the wider highway network
19. To deliver a programme of 20mph zones	Leicester City Council	Leicester City Council; Developer Contributions	Ongoing	Low Can bring improved localised air quality and encourage walking and cycling trips
20. To discount parking charges for Low Emission Vehicles	Leicester City Council	Leicester City Council; External funding bids	2016+	Low with potential for Medium impact over time

THEME 3 CONSULTATION QUESTION:

5. Other than those actions currently in the Action Plan, are there any other actions we could be doing to improve traffic management?

objectives for growth of the city over the next 15 years. We are consulting on our Issues and Options report for the New Local Plan. Air quality considerations will be embedded in the new Local Plan which is due for adoption in late 2016.

THEME 4: IMPROVING LAND USE PLANNING

ACTION 21: LAND USE PLANNING

While the planning process cannot solve immediate air quality issues, the National Planning Policy Framework (NPPF) recognises that air quality is a relevant consideration and that planning can play an active role in delivering sustainable developments that are well located and allow future residents, businesses and visitors to make low emission vehicle choices. Effective planning policies can play a significant role in helping sustain air quality improvements by both discouraging the use of high emission vehicles and supporting the uptake of low emission vehicles, including the provision of low emission vehicle refuelling facilities, such as electric vehicle charging points. We have begun preparation of a new Leicester Local Plan which will set out the vision and

ACTION 21: To ensure air quality considerations are embedded into the New Local Plan to be adopted in 2016.

ACTION 22: LAND USE PLANNING GUIDE

Current guidance to support our planning policies tends to focus on how air quality should be assessed rather than providing clear and consistent advice to developers on feasible measures that can be integrated into scheme design. A Land Use Planning Guide, will be developed (for planning officers and developers) to ensure air quality considerations are integrated into land-use planning policies and development management guidance. The aim is to ensure that any likely scheme impacts are appropriately mitigated and future scheme occupants are able to make low emission vehicle choices.

ACTION 22: To implement the Land Use Planning Practice Guidance by 2016 to ensure all land use planning decisions minimise the need to travel by polluting vehicles.

THEME 4 CONSULTATION QUESTION:

6. Other than those actions currently in the Action Plan, are there any other actions we could be doing to improve air quality through land use planning?

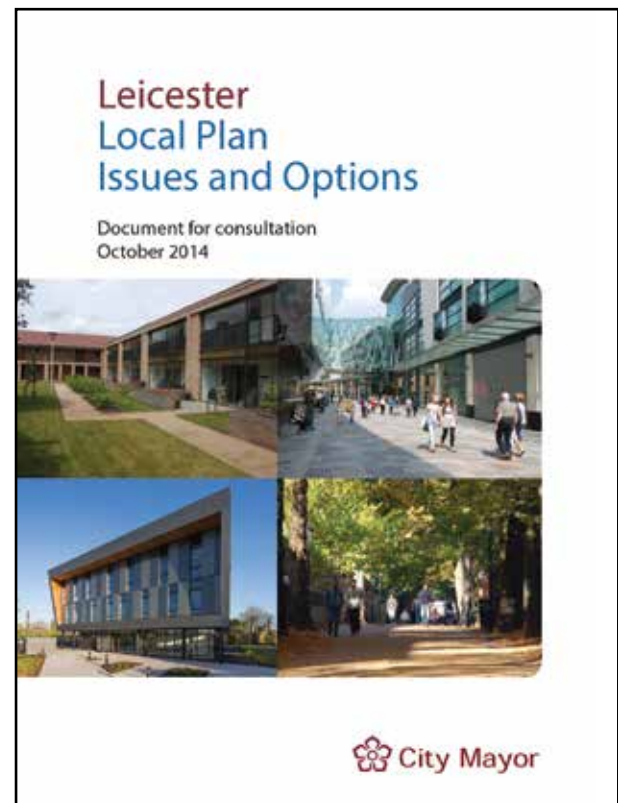


Table 9: Summary of Improving Land Use Planning Actions

Action	Lead Partners	Funding	Timescale	Air Quality Impact
21. Land Use Planning – (preparation of a New Leicester Local Plan)	Leicester City Council	Staff time	Ongoing to 2016	Medium impact over time
22. Adopting a Land Use Planning Guide	Leicester City Council	Staff time	By 2016	Medium impact over time

5. THE IMPACTS, MONITORING AND EVALUATION

This Air Quality Action Plan sets out an ambitious package of measures to improve air quality and the health of people in Leicester.

Defra have recently predicted that Leicester will meet the European NO₂ target by 2025, acknowledging that compliance with this target would not be achieved in Defra's earlier projections for 2015. The compliance period for Leicester has been extended by 10 years to reflect more pessimistic national projections on the performance of diesel vehicles and older petrol cars. This is largely due to the failure of the European vehicle emission standards for diesel cars to deliver the expected emission reduction of NO_x. However, there remain uncertainties in the projections for future compliance by 2025 due to the potential variance in weather, economic and energy forecasts, expected levels of future traffic activity, expected rates of turnover in vehicle fleets and the assumptions regarding the emission factors of road traffic¹⁴.

The approach set out in this action plan is for the council and its partners to implement realistic and deliverable measures over the next 10 years that provide the most effective means to meet or better air quality targets for Leicester. Our proposed actions have been developed from the best evidence available and through stakeholder consultation.

The LESTAir project provides the best available evidence on prospective measures to tackle air quality effectively. This identified and assessed the best actions to meet European targets and developed a 'preferred package' of interventions based on cost benefit analysis and air quality impact modelling. The results of the LESTAir project have shown that a 67% reduction in

transport related NO_x is needed to ensure compliance with the NO₂ Limit Values for 2015. It is clear from the study that to meet our targets for air quality a combination of measures will be required, some of which can be delivered in the next few years, and other more radical measures that we will need to consider further with our partners, such as more radical Low Emission Zone scenarios and the extensive rollout of gas-powered vehicles.

A range of further complementary measures have been identified that over time can have a significant effect on improving air quality. These include projects to encourage walking, cycling and greater bus use, such as the Connecting Leicester initiative and measures contained within Leicester's Local Transport Plan.

By combining both the LESTAir measures and other complementary measures in the Action Plan, these interventions offer the best prospect of compliance with the European targets for nitrogen dioxide by 2025.

Monitoring and Evaluating Progress

We will continue to monitor air quality through our network of monitoring stations on the main road network. Monitoring pollution is essential for managing air quality as it tells us what the levels of pollutants are, and how effective policies and actions are in improving air quality over time with the consequent impacts on the health of city residents.

We will conduct a comprehensive review of the effectiveness of this Air Quality Action Plan during 2018/19 and then towards the end of the plan period in 2023/24.

14. http://uk-air.defra.gov.uk/assets/documents/no2ten/140708_NO2_projection_tables_FINAL.pdf

Governance Arrangements

An Air Quality Action Plan Board will oversee the development and delivery of this plan. The Board will consist of Transport, Pollution and Public Health senior managers and will be responsible for liaison with regional and national partners where appropriate such as the East Midlands Air Quality network currently being instigated by Public Health England.

Lead officers will be appointed as 'Action Managers' to be responsible for particular areas of work. Action Managers will be responsible for working with both internal departments and external partners such as taxi representatives or bus companies. Internal departments to the council will incorporate the relevant air pollution actions into their own action plans as a result of support and coordination by the Board and their relevant Action Managers.



Glossary

Air Quality Action Plan

A plan which must be prepared as part of the Local Air Quality Management (LAQM) process, if an Air Quality Management Area is designated.

Air Quality Management Area

Areas in the City where air quality levels fall below Government standards, including much of the city centre and the city's main arterial routes. The Council draws up air quality improvement plans for these areas.

Annual Mean

The average over a year of concentrations measured (or predicted) for a pollutant, relating to a calendar year

Carbon Dioxide

A greenhouse gas that contributes to global warming

Concentration

The amount of a substance in a volume (of air) typically expressed as a mass of a pollutant per volume of air, e.g. microgrammes per cubic metre ($\mu\text{g}/\text{m}^3$)

DEFRA – Department for Environment, Food and Rural Affairs

The Government department responsible for policy and regulations on environmental, food and rural issues.

Department for Transport

The Government department responsible for the UK transport.

Emission

The amount of a substance emitted in a certain time, typically expressed as a mass of a pollutant per unit of time (e.g. grams per second or tonnes per year).

Euro Standards

Emissions standards set by the EU which all new road vehicles sold in the EU must meet.

Low Emission Zone

Is a geographically defined area where the most polluting vehicles are restricted or discouraged from using.

Microgramme per cubic metre of air

A unit for describing the concentration of air pollutants in the atmosphere, as a mass of pollutant per unit volume of clean air

Nitrogen dioxide

Formed in small amounts in the atmosphere during high temperature combustion, but the majority is formed in the atmosphere through the conversion of nitric oxide in the presence of ozone.

Particulate matter (PM10)

Particles with an equivalent aerodynamic diameter of ten microns or less and is small enough to penetrate the lungs.

Particulate Matter (PM2.5)

Particles with a mean effective aerodynamic diameter of 2.5 microns or less.

SCRT - Selective Catalytic Reduction Technology

Selective Catalytic Reduction Technology is a means of converting nitrogen dioxides with the aid of a catalyst into diatomic nitrogen, N_2 and water, H_2O .



