

Healthier Air for Leicester

Leicester's Air Quality Action Plan (2015-2026)



Foreword



I am committed to making Leicester one of the best places to live, work and visit. By delivering this plan, together with our partners the council will play a key role in improving air quality in Leicester and the surrounding area.

This will help us to reduce health issues from air pollution and to meet EU and national air quality standards.

We have listened carefully to many interested stakeholders, including local organisations and residents, and their ongoing support for our plans to improve air quality in Leicester demonstrates the level of genuine commitment to tackling this issue. Like me, they are keen to see big improvements in the shortest possible time, and have urged us to lobby government for action at a national level to reduce the negative impacts of road traffic and diesel engines in particular.

Of course, there have already been great improvements made in Leicester over the past five years, including the delivery of our award winning "Connecting Leicester" programme. This plan builds on much of this good work and further improves our current initiatives to encourage more walking and cycling in Leicester which not only reduces emissions but makes us more active and healthier in the process.

Together with our plans for the economy, sustainability, health and planning, I am confident this plan can make a very significant contribution to the quality of life in the city.

Sir Peter Soulsby
City Mayor



A strategic approach to delivering better air quality, particularly by tackling emissions from diesel vehicles, is vital to improving health for the people of Leicester. Whilst much has been achieved in the city through

effective management of the transport infrastructure and through incentives to use cleaner, greener transport new and different interventions are now required.

This action plan sets out how we will improve air quality and meet the EU standards for nitrogen dioxide, but we cannot achieve this alone. In addition to requiring the support of government and the EU, we will also need strong partnerships with all those agencies, organisations, communities and individuals who live and work in Leicester.

An ambitious package of sixteen measures is presented in this plan, which when fully implemented will accelerate improvements in air quality and help deliver significant public health benefits. The measures will also contribute to reducing Leicester's impacts on climate change, enhancing the local environment and meeting targets in the forthcoming Leicester Sustainability Action Plan. Furthermore, cleaner air in our city can have a positive impact on the local economy.

I am grateful to all those who have contributed to the development of this Action Plan. Businesses, individuals, campaigning organisations and elected members have all helped to make this a plan which I firmly believe will assist in achieving healthier air for Leicester.

Councillor Adam Clarke
Assistant City Mayor, Energy & Sustainability,
Heritage Champion, Councillor for Aylestone ward

Contents

Executive Summary	4
1 Leicester's Ambitions by 2026	5
Themes	6
Actions by 2026	7
2. Air Pollution in Leicester	9
3. Developing an Action Plan	16
The Low Emission Strategies for Transport (LestAir)	
Project	16
Key Findings	17
Conclusion	18
Taking LESTAir Forward	19
Other Complementary Measures	19
Consultation	20
4. The Action Plan	22
Theme 1: Reducing Transport Emissions	23
Theme 2: Promoting Sustainable Transport	29
Theme 3: Improving Traffic Management	34
Theme 4: Enhancing Planning and the Environment	35
5. The Impacts, Monitoring and Evaluation	36
Monitoring and Evaluating Progress	36
Governance Arrangements	37
Appendices	37
References	45
Glossary	46
Notes	48

Executive Summary

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 2026 intended to significantly reduce air pollution to a level lower than we are required to achieve by law. It is informed by knowledge of and commitment to what is necessary to improve the quality of air in Leicester and complements our other strategies, such as our Economic Action Plan (2012-20) and forthcoming Leicester's Sustainable Action Plan.

The consequences of this plan will be more than just reaching EU targets, it will mean better health for the people of Leicester. The plan is also clear on the need to work with Government and our partners in order to achieve our overall aim.

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 pollutants is road traffic, in particular diesel engines.

Like many other UK cities, Leicester currently exceeds the EU threshold level of $40\mu\text{g}/\text{m}_3$ for nitrogen dioxide in a number of areas. These are predominantly areas where there are large volumes of traffic particularly along major routes into the city and in the city centre. Monitoring shows that levels of pollutants have decreased from $80\mu\text{g}/\text{m}_3$ to $60\mu\text{g}/\text{m}_3$ in the past few years but still not enough to meet EU thresholds.

Defra projections have indicated that air quality in Leicester may reach the EU threshold level by 2020. 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



Leicester's School's Ride 2015 in the city centre

suffering or dying from the effects of air pollution each year.

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

The plan sets out our ambitions and the 16 actions presented under four themes we propose to take to reduce air pollution in Leicester. The themes are:

- Theme 1: Reducing Transport Emissions
- Theme 2: Promoting Sustainable Transport
- Theme 3: Improving Traffic Management
- Theme 4: Enhancing Planning and the Environment

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.

1. Leicester's Ambitions by 2026

- 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 26,000 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.

Belgrave Road public realm improvements 2014



Themes

To realise our air quality ambitions for the city, the council and its partners will focus activities on the 16 actions in the Air Quality Action Plan; which are grouped into four themes as presented below.



Actions by 2026

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 23).
2. 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 2026, or sooner if possible (page 24).
3. To work with Bus, Freight, Rail and Taxi transport sectors to reduce their environmental impact (page 24).
4. Increase the uptake of Ultra Low Emission Vehicles by residents and business (page 27).
5. To progressively reduce emissions by 50% by 2025 from the council's fleet operations (page 28).
6. To implement a Sustainable Public Procurement Guide in 2016 (page 28).

Theme 2: Promoting Sustainable Transport

7. To deliver a Phase II 'Connecting Leicester' initiative by 2019, encouraging walking and cycling (page 29).
8. To increase the uptake of more sustainable transport options (page 31).
9. To increase the number of Public Transport trips (page 32).
10. To deliver Leicester's Cycle City Action Plan (2014 – 2024) and integrate walking initiatives (page 33).

Theme 3: Improving Traffic Management

- 11. To optimise our highway network (page 34).
- 12. To deliver a programme of 20mph zones (page 34).
- 13. To deliver a Parking Improvement Programme (page 34).

Theme 4: Enhancing Planning & the Environment

- 14. To ensure air quality considerations are embedded into the New Local Plan to be adopted in 2017 (page 35).
- 15. To implement the Land Use Planning Practice Guidance by 2017 to ensure all land use planning decisions minimise the need to travel by polluting vehicles (page 35).
- 16. Using trees and plants to reduce air pollution (page 35).

2. Air Pollution in Leicester

Air pollution occurs when the amount of certain pollutants exceed recommended levels. There are a variety of different pollutants such as ozone and benzene, 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 5 on page 15 indicates the levels of nitrogen dioxide at the monitoring stations. The majority of this pollution comes from road traffic emissions along major routes into the city (there are over 29,000 daily car commuters into the city in 2014^[1], with the average commuted distance being six miles^[2]) 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 worldwide^[3] while in the UK it is the 8th leading cause of premature mortality^[4].

Although, by itself, air pollution exposure is a rare cause of death, there is strong evidence of its contribution to mortality from heart disease, stroke and lung conditions, mainly chronic obstructive pulmonary disease (COPD) and lung cancer.

To estimate that impact, health risks linked to particulate air pollution have been quantified through modelling of local exposure levels and cause-specific mortality. One such study^[5] concluded that in Leicester, in 2010, 6.6% of mortality was attributable to air

pollution (equivalent to 162 deaths that year). This is an estimate of the potential reduction in deaths if air pollution was completely removed as the exposure factor. Given the national average of 5.6% of deaths attributed to air pollution in 2010, reducing pollution in Leicester to that level could save about 30 deaths every year. In areas demographically similar to Leicester ('peer' local authorities) the average was 6.4%, ranging from 5.9% (Manchester) to 7.1% (Barking and Dagenham).

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. This plan will use public health location data to help identify areas where air quality needs to be lowered as a priority.

Our Air Quality Action Plan also links in with our Economic Action Plan (2012-20). By improving air quality, we anticipate that this will encourage growth and investment into the city. The impact of transport related air pollution is estimated to cost Leicester's economy around £7.2 million per year^[6,7], for instance from the impacts on employees and through lost productivity to businesses. Additionally, air pollution impacts on the natural and built environment as there is damage to buildings from particulates.

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.

The Public Health Outcome Framework includes an indicator for air quality which local authorities are expected to show progress on. Air quality is one of a total of 68 Public Health Outcomes Framework indicators compiled by the Department of Health. Improving air quality, through for example, reducing emissions from diesel cars, will directly affect health outcomes by reducing health risk.

Leicester has an important role to play in reducing emissions. Leicester's Climate Change Programme has set out ambitious plans to reduce the carbon footprint and the plan supports delivery of this Action Plan. The forthcoming Leicester Sustainability Action Plan will link with this plan to promote sustainable transport making it a key priority to invest in better public transport, walking and cycling facilities. Reducing the number of cars into and through Leicester will result in better air quality in the city.

Tackling air pollution is required by law. Leicester City Council has a duty under Part IV of the Environment Act 1995 and relevant regulations to review and assess air quality within the city. We operate a series of five automatic air quality monitoring stations (see figure 1). The stations measure nitrogen dioxide and particulate matter. The monitoring stations are located in areas of high traffic density. The data from these monitoring sites help us to understand the distribution of past and current concentrations of pollutants in the air. Ongoing monitoring has shown areas in Leicester are not meeting air quality objectives. As such we have had to declare an Air Quality Management Area (see Figure 1). In 2015/16 the council will undertake its review and assessment of the Air Quality Management Area, which may alter the area depending on the current distribution of poor air quality.

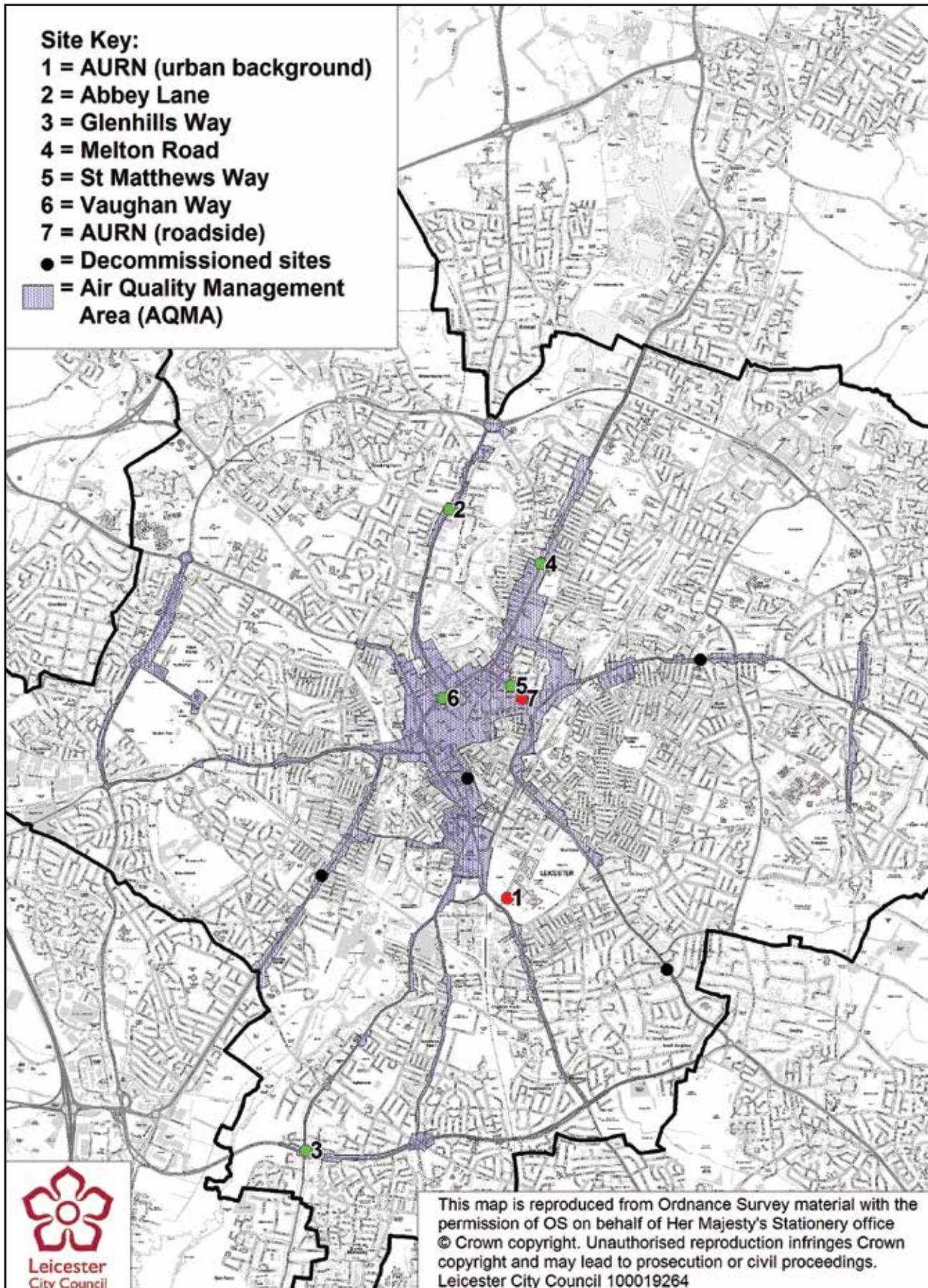
The impact of poor air quality on human health means that tackling it is much more than simply complying with the law. It is a fundamental public health issue that not only requires action across the whole population but one that will benefit the whole population for many years to come. Leicester's Air Quality Action Plan sets out an ambitious strategy on how this will be achieved.

Figure 1 on page 11 illustrates that air pollution from road traffic emissions is an area wide problem. The pollution is focused on and immediately alongside the most heavily trafficked roads and it disperses rapidly away from the road. The main areas of concern are along our radial routes where there are a large number of vehicle movements.



Air Quality Monitoring Station

Figure 1: Leicester's Air Quality Management Area and Monitoring Stations



To improve air quality, it is important to establish what the main 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 (NO_x) emitted by various sources inside the boundaries of Leicester. This is shown in Figure 2.

Figure 2: Leicester NO_x Source Apportionment 2014

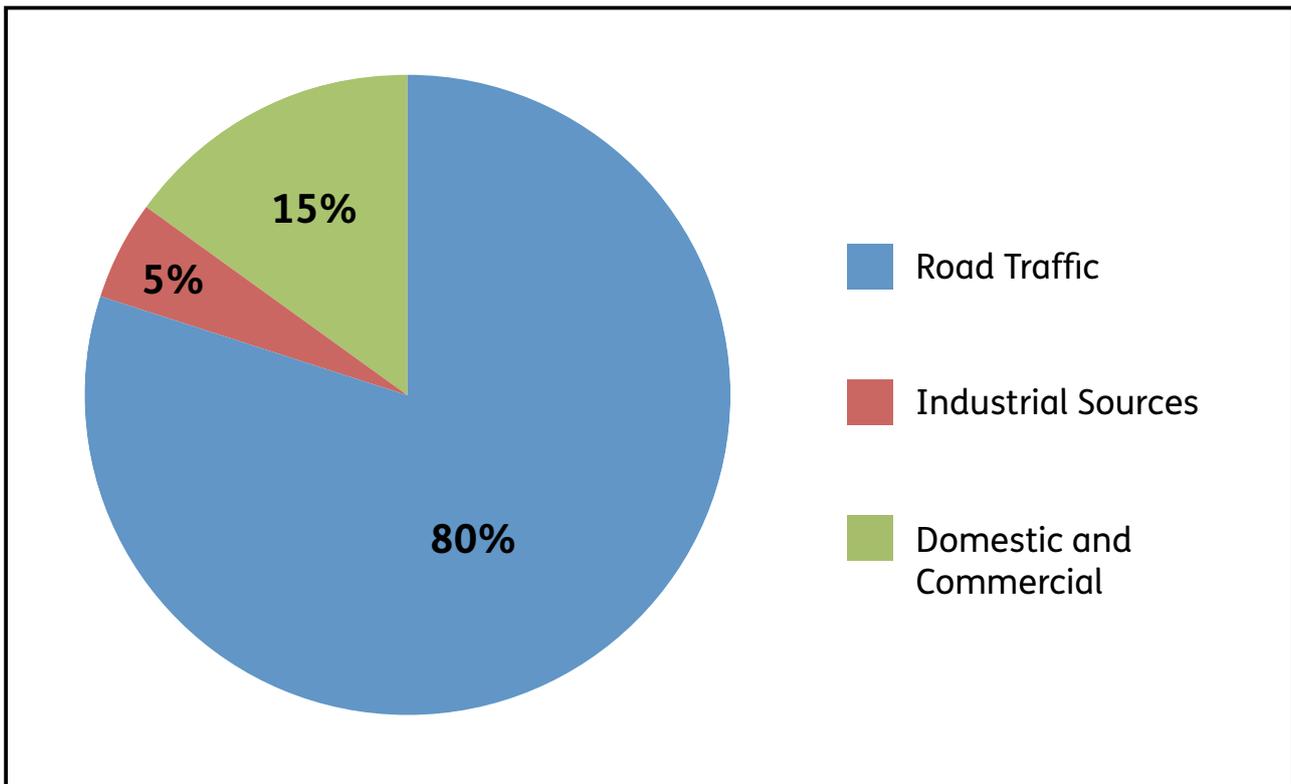


Figure 2 shows the source breakdown of the estimated 4033 tonnes emitted within Leicester each year.

Regional Background Sources:

In addition to local oxides of nitrogen (NO_x) information there are regional background emissions brought in from sources well outside the city (e.g. the West Midlands conurbation, coal fired power stations etc.), which are therefore not included in Leicester's total 'inventory'. From DEFRA modelling^[8], this accounts for 9% of the total NO_x in Leicester.

It can be seen that emissions from traffic comprise around 80% of the total city's pollution. The 20% generated from non-transport sources are largely outside our direct ability to influence significantly e.g. domestic heating and industry.

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 7.2^[9]. 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. 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 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: NO_x Source Apportionment 2014

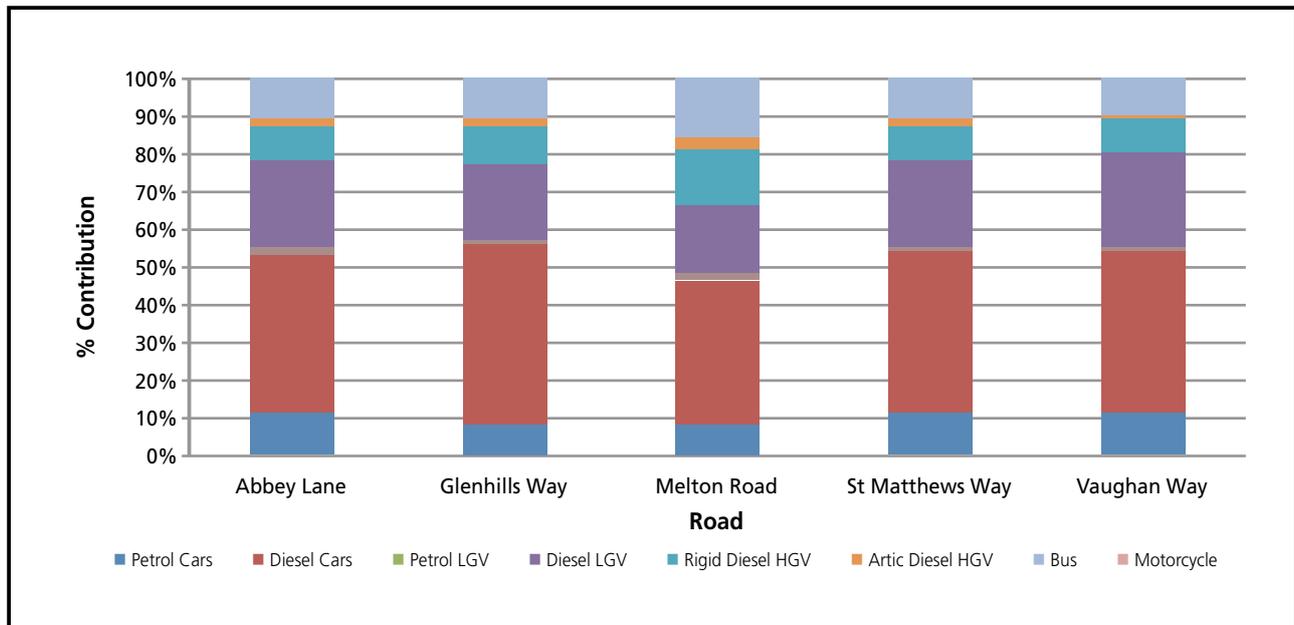


Figure 4: Leicester Air Quality Data - Annual Mean NO₂ µg/m³

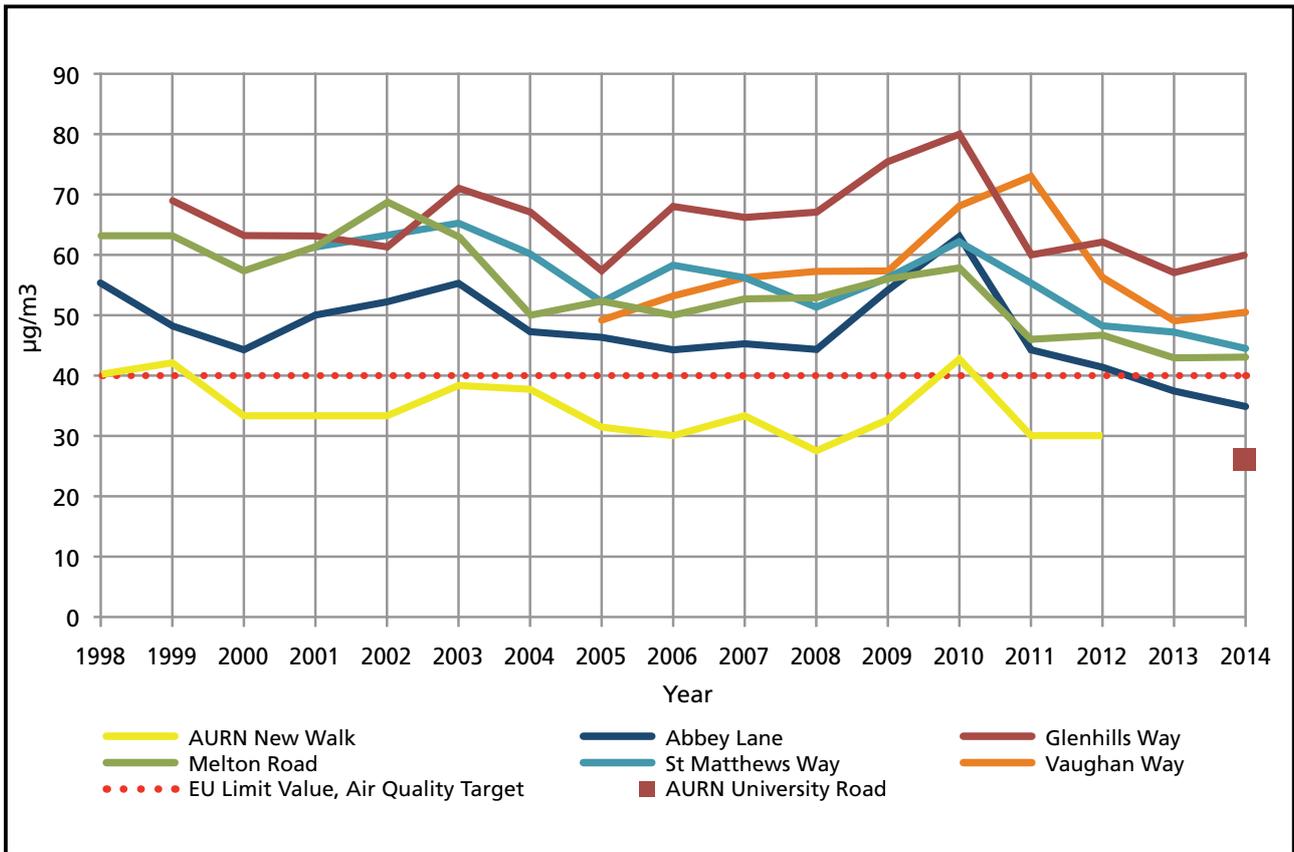


Figure 4 shows the Air Quality Annual Mean Values for Leicester between 1998 and 2013. Air quality levels between 1998 and 2008 were above EU target levels. However, between 2008 and 2010/2011 levels increased at all sites but all have fallen to 2013. Levels of nitrogen dioxide at four of the five main 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 Toolkit^[7] to predict the proportion of emissions of NOx emitted for different

classes of vehicles for 2021. The toolkit uses nationally modelled data to represent ‘best’ estimates for NOx 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 NOx 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 NOx in 2021.

Figure 5: Annual Mean NO₂ Concentrations at Monitoring Stations (1998 – 2014)

Site ID	Annual NO ₂ Mean Concentration µg/m ³																
	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014
Abbey Lane	55	48	44	50	52	55	47	46	44	45	44	54	63	44	41	37	35
Glenhills Way		69	63	63	61	71	67	57	68	66	67	75	80	60	62	57	60
Melton Road	63	63	57	61	69	63	50	52	50	53	53	56	58	46	47	43	43
St Matthews Way				61	63	65	60	52	58	56	51	56	62	55	48	47	45
Vaughan Way								49	53	56	57	57	68	73	56	49	51

Figures 4 and 5 show the Air Quality Annual Mean Values for Leicester between 1998 and 2014. Air quality levels between 1998 and 2008 were above EU target levels. However, between 2008 and 2010/2011 levels increased at all sites. 2014 data shows that levels are now generally falling. Levels of nitrogen dioxide at four of the five main sites on Leicester's strategic road network continued to exceed EU targets in 2013 and 2014 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 Toolkit^[10] 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.

3. Developing an Action Plan

This plan has been developed through identification of the types, distribution, and source of air pollution affecting the city. Computer air quality modelling has been used to assess the improvements individual actions could make. From this a range of complementing actions to improve air quality have been drawn together to make this 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

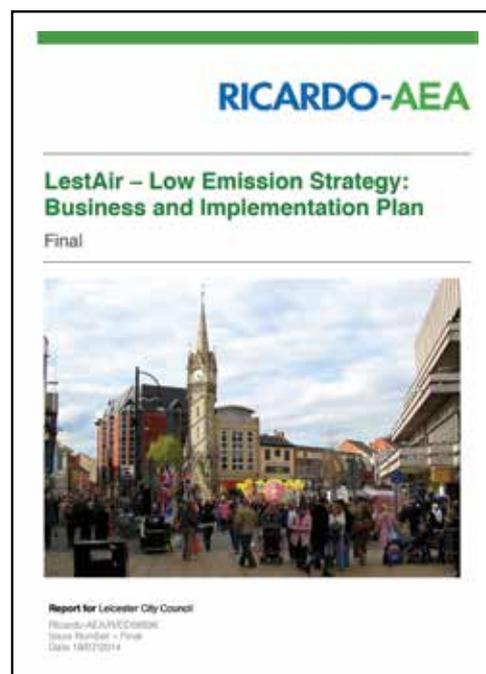
LestAir^[6] was a Defra funded project carried out to identify and assess best actions to help us meet the 2015 European Union legislation Limit Values on air pollution.

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 Toolkit^[10] 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. 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 has applied to all new cars and vans from September 2015. A table setting out the permitted NO₂ levels and implementation dates for Euro 5 and 6 standards for the different vehicles is in Appendix A.



Key Findings

The 'Do-nothing' forecast

The 2011 modelled transport emissions, using the Defra Emission's Factor Toolkit^[10] and 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 are not permitted within the inner ring road
Bus retrofit	All buses not meeting the Euro 4 standard to undergo a SCRT ^[11] 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.

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 40/μm³) 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).

In September 2015 Defra updated their projections^[2] based on modelling for NO₂ compliance for Leicester, as like many other major towns and cities, full compliance with the annual NO₂ limit had not been achieved by 1st January 2015. Defra modelling now indicates that compliance with the EU NO₂ limit values of 40µg/m₃ will be met, only marginally, by 2020 for Leicester. The projections reflect the up-to-date assumptions on the performance of modern diesel cars and older petrol cars and specific local schemes designed to improve air quality, including all actions within this Air Quality Action Plan. However this is only a modelled projection indicating marginal NO₂ compliance and therefore not guaranteed. If certain assumptions made in the Defra modelling process are not met, Leicester would not be compliant. It is important the measures set out in our Action Plan (see Section 4) deliver the required air quality improvements promptly.

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 2020 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 $40\mu\text{g}/\text{m}^3$ for NO_2 by 2020.

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.

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, for example 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 2020 taken together with the actions identified through the LESTAir project, they should significantly contribute to reductions in nitrogen dioxide and particulate matter.

Consultation:

Consultation on our, 'Healthier Air for Leicester: Leicester's Air Quality Action Plan' was conducted between March – June 2015 and was managed in accordance with policy guidance requirements. Responses from the consultation were reviewed and used to develop the final action plan. Consultation was conducted with:

- The Secretary of State
- The Environment Agency
- Highways England
- Neighbouring local authorities
- Other public authorities
- Bodies representing local businesses and other organisations as appropriate.

Replies to the consultation indicated that there was strong support (76%) for the Council's aspirations to introduce a Low Emission Zone and then an Ultra-Low Emission Zone. Feedback from the bus companies was that there are no objections to our proposals. We will however discuss the details of the proposals with the operators as the scheme is developed to ensure the scheme facilitates improvement in air quality as well as having no detrimental effects on bus services.

Respondents also were supportive of our action to lobby central government to introduce measures to reduce polluting emissions from diesel vehicles (85%).

A summary of the main consultation responses include:

- Improving the public transport network and operation
- Improving our cycling infrastructure
- Improving the management of the highway network
- Ensuring land use planning decisions encourages active travel /restricts the use of cars
- Encouraging more Ultra Low Emission Vehicles (ULEV)

Even though there were over 170 responses to the consultation, two additional events were held with over 1000 invitations sent out to local businesses. This increased the robustness of the consultation. These produced a number of new ideas that did not feature in our draft Action Plan. These responses have now been considered and the Action Plan now includes:

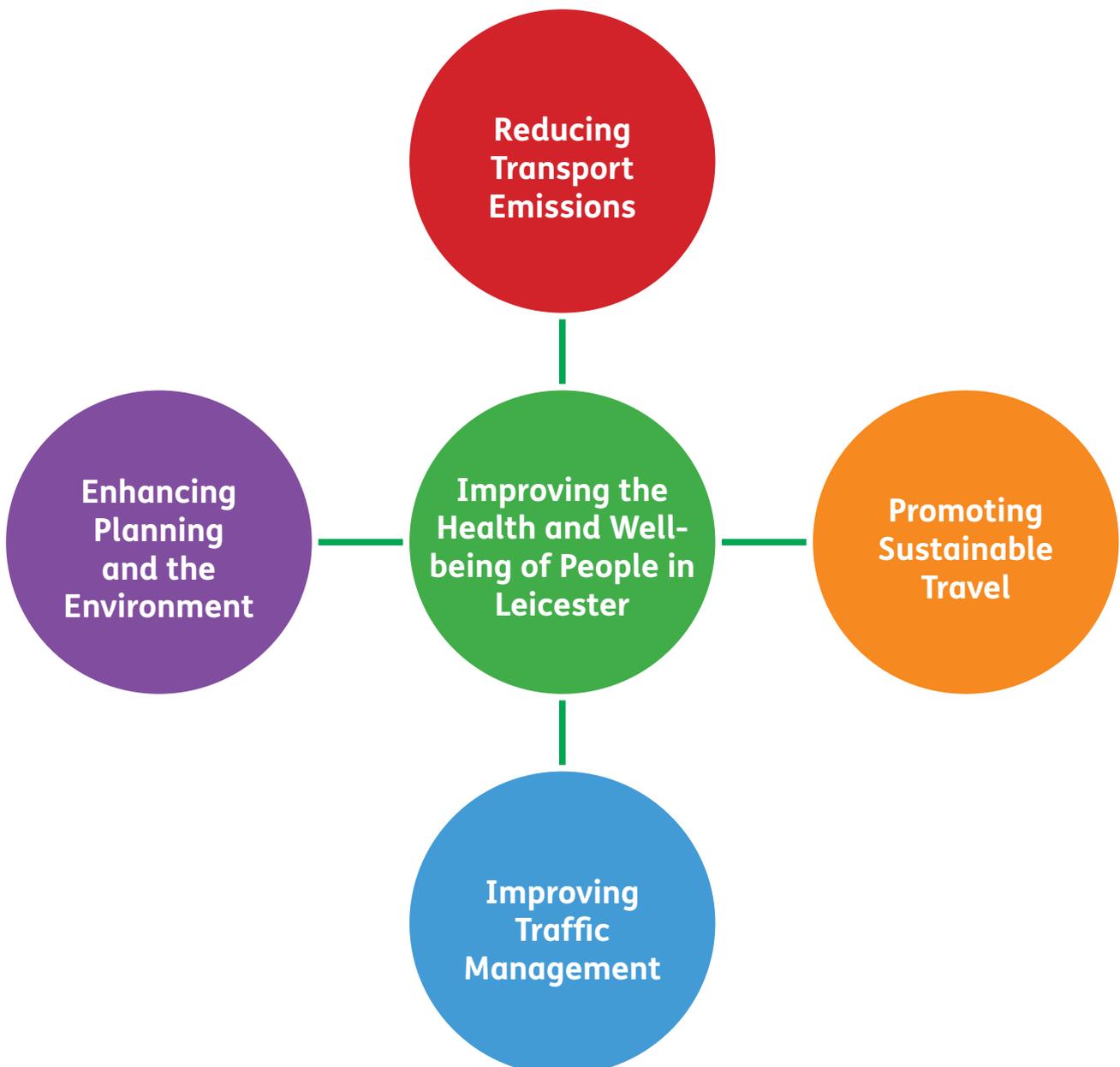
- Delivering awareness campaigns of air pollution
- Vehicle idling measures
- Further environmental measures, such as more tree planting

4. THE 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 in this section are drawn from our LestAir project, stakeholder and full public consultation and other complementary initiatives as set out in section 3. The actions

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. Many of the actions contain a number of smaller work packages, some of which are detailed in the summary table in Appendix A, or will be developed through future work.

We have grouped the actions into four themes:



The timescales, delivery partners and potential air quality impacts of each of the actions set out within the themes are summarised in a table in Appendix B (page 38).

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 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

Whilst the actions in our plan that 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 on page 13).

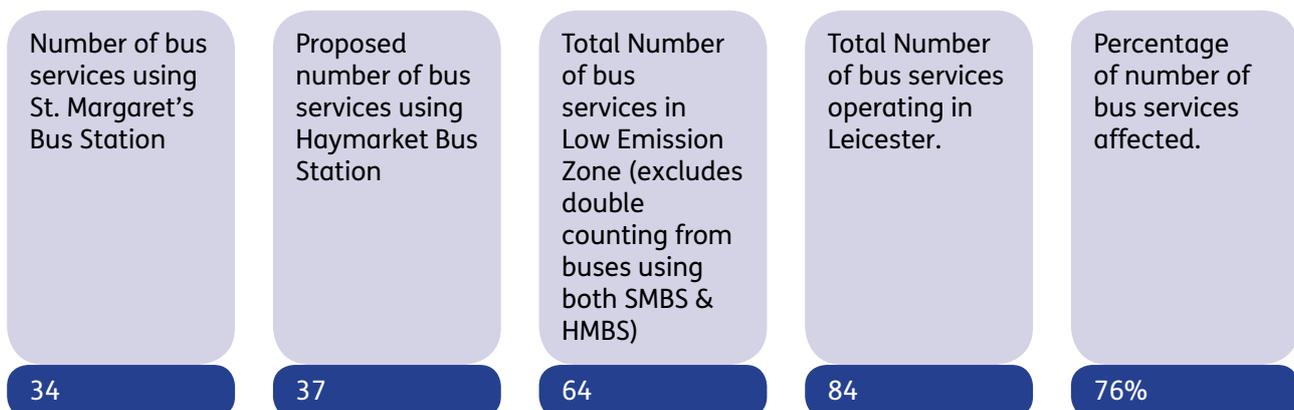
This is a national problem that needs to be addressed, but it is outside of our control. central government can tackle this issue directly, for instance through initiatives such as tax breaks that are favourable to the full range of low emission vehicles, better promotion of low emission vehicles as 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 co-ordinated action to reduce air pollution in Leicester.

From consultation responses it is clear there needs to be coordinated awareness campaigns that engage with the general public on air pollution. We will work with Central Government to develop these campaigns at a local, regional and national level.

We will lobby with government to develop more rigorous vehicle testing protocols, particularly to eliminate misleading vehicle performance figures. We will also campaign for the inclusion of NO₂ into the MOT.

Table 5: Number of Bus Services affected by the Low Emission Zone (September 2015)



ACTION 2: TO INTRODUCE A LOW EMISSION ZONE FOCUSED INITIALLY ON BUSES USING HAYMARKET BUS STATION AND ST MARGARETS BUS STATION, BY 2017, AND TO WORK TOWARDS AN ULTRA LOW EMISSION ZONE (ULEZ) FOR ALL VEHICLES OVER THE PERIOD TO 2026, OR SOONER IF POSSIBLE.

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.

Low Emission Zone

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 help 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. By focussing on the bus stations we will involve many of the buses operating across the city as well as focusing on an area of high traffic activity. 76% of bus services in the city 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. From the consultation it was clear our stakeholders wanted the licensed taxis to be included in the scheme. We will work with taxi companies with an aim to ensure that all taxis that can use the bus lanes are of Euro IV engine standard or better by the end of 2017.

Leicester's composition of euro emission vehicle standards for the three largest bus fleets, Arriva, First and CentreBus (as at September 2015) shows that all three bus operators have over half of their fleets at a

Euro III emission standard or less. We are currently working with Arriva and CentreBus to support retrofitting of 32 buses and five buses respectively. 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. First has started a bus replacement programme which includes upgrading all its double decker buses to Euro 6 standard by summer 2016.

Ultra-Low Emission Zone

The Low Emission Zone will 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 with the aim of starting the zone over the period to 2026 or sooner if possible.

ACTION 3: TO WORK WITH BUS, FREIGHT, RAIL AND TAXI TRANSPORT SECTORS TO REDUCE THEIR ENVIRONMENTAL IMPACT:

We will continue to work in partnership with the bus, taxi, and freight operators to encourage positive 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 help identify suitable opportunities for their fleets.

BUS OPERATORS:**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 NO_x emissions; accounting for between 33% and 40% on key road sections. It concluded that retrofitting Euro III buses with Selective Catalytic Reduction Technology (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 (SCRT) equipment to lower emissions to Euro V standard. The current programme of retrofitting will be complete by 2016.

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.

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 2).

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 (NO_x) as



Euro VI First Bus

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 used^[13]. 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, that are cleaner, greener and more fuel efficient.

FREIGHT:

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.

Delivery and Servicing Plans

Implementation of demand management of freight deliveries can be done through delivery and servicing plans (DSPs)^[14]. 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.

Environmental Performance

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, FORS (Fleet Operation Recognition Scheme), Leicester City Council's own Greener Safer Driving course and the Road Haulage Association (RHA) Compliance Audit.

Consolidation Centres

Leicester currently operates a delivery consolidation service, based at Leicester Railway Station. This service offers the last mile of delivery to be more efficient (in terms of being less difficult, time consuming and costly).

As a long term action, the potential for a freight urban consolidation centre will be considered. Freight consolidation centres are distribution centres situated near to a strategic road network where HGVs can 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 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.

We will work with the Rail industry to open up possibilities for rail delivery of freight in the city. This could help reduce the number of large delivery vehicles in the city and help attract investment.

We will aim to improve the 'Last Mile' delivery link between the hub and city centre destination.

TAXI AND PRIVATE HIRE:

Reducing emissions from taxi and private hire vehicles would make an important contribution to improving air quality in the city. Currently, their engine emissions must meet a minimum Euro III standard. In 2015, the licensed taxi and private hire policy was reviewed requiring:

- Vehicle age policy - if a taxi or private hire vehicle has reached an age of 12 years, we would not renew their licence. Therefore there is a continual update of the taxi fleet;

- Offering a financial incentive of free licence fee to taxi drivers if their vehicle has Euro VI engine or a half price for a Euro V; 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. It is proposed a taxi partnership be developed which regularly reports to the Air Quality Action Plan Board on progress on air quality.

In summer 2015 we entered into a partnership with all the Leicestershire district councils to bid for central government funds from the Offices for Low Emission Vehicles (OLEV). We are committed to improving the taxi and private hire vehicles that use Leicester's streets, so extending any work with operators who come into the city from outside, is also important.

ACTION 4: TO INCREASE THE UPTAKE OF ULTRA LOW EMISSION VEHICLES BY RESIDENTS AND BUSINESS

The government is committed to supporting the development of low and ultra-low emission alternatives across all vehicle sectors. 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 (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.

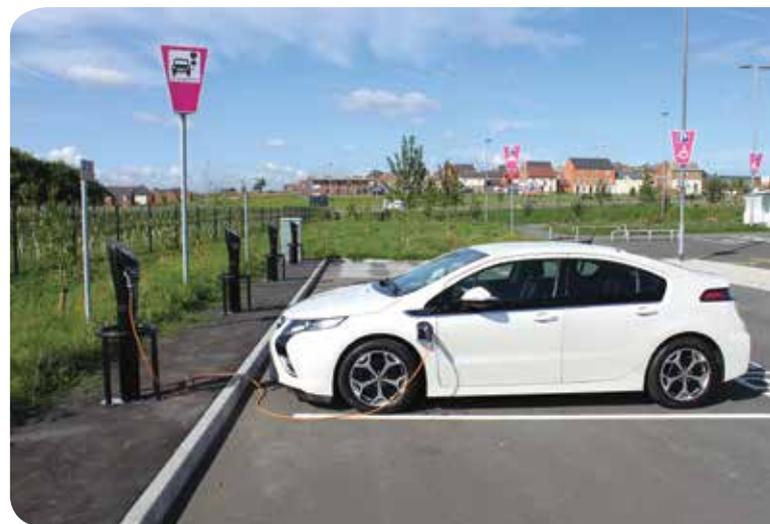
Leicester's Climate Change Programme has an end of 2015 target for 30 electric vehicle charge points to be installed in the Leicester area. Recent installations have brought the current total up to 24 charge points. These are found at the Newarke and Dover Street car parks in the city centre, as well as the three park and ride sites serving Leicester;

Meynell's Gorse, Birstall and Enderby. All these sites feature 'fast' chargers, which can recharge a battery in two to four 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.

We are bidding for available government funds when they arise. Already we have bid for £11.7million from the Office for Low Emission Vehicles for a 'City Scheme' to encourage the take up of ULEVs in Leicester and Leicestershire. The proposal is to attract 10,000 ULEVs on to Leicester's roads by 2021 through provision for 10,800 charging points and a number of additional initiatives including, rollout of a salary sacrifice ULEV scheme for businesses, marketing campaign, free parking in council-owned car parks and introduction of innovative projects.

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.

The lack of publicly accessible gas refuelling infrastructure has been identified as a significant barrier to the increased uptake of cleaner gas fuelled HGVs.



Example of an Electric Car and Charging Point

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 possibility of establishing shared use facilities as opportunities arise and through studies such as our gas buses study (Action 3).

ACTION 5: TO PROGRESSIVELY REDUCE EMISSIONS BY 50% BY 2025 FROM THE COUNCILS FLEET OPERATIONS

Vehicles

In 2014 we had 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 are leading by example to reduce emissions by replacing 110 diesel vans with ULEVs over the next three years. We have also started the process of reducing the size of our fleet with an estimated loss of 150 vehicles by the end of 2016 and 200 by the end of 2017. 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.

Greener Safer Driving

Driving skills and behaviour can be learnt and modified to substantially improve fuel efficiency and reduce wear on tyres and brakes. From our studies 12% in fuel reduction can be made by drivers undertaking the training scheme.

Short car journeys cause up to 60% more pollution per mile than longer journeys^[15]. 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 fleet vehicles is of benefit to air quality. We currently have a programme to ensure drivers undergo training to improve safe and fuel efficient driving skills.

ACTION 6: TO IMPLEMENT A SUSTAINABLE PROCUREMENT GUIDE IN 2016

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



Jubilee Square: Example of city centre public realm improvements

THEME 2: PROMOTING SUSTAINABLE TRANSPORT

ACTION 7: TO DELIVER A PHASE II 'CONNECTING LEICESTER' INITIATIVE BY 2019 ENCOURAGING 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. We will deliver a Connecting Leicester Phase II that will create a thriving city centre through investment in quality public realm and improved access.

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. Sixteen streets have recently been improved, these amount to a total length of 5000m. The next wave of works is currently being planned and a further twelve streets amounting to 1690m are anticipated to be improved over the next four 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 focused on the Leicester pedestrianised retail areas, including around the Market and the Highcross and Haymarket Shopping centres, and linking these areas to the city's extensive heritage assets including the Richard III Visitor Centre. In addition two 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. These public realm improvements are important in delivering the walking and cycling targets developed in Action 10.



The new Haymarket Bus Station being constructed

- **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 redevelopment of the 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 in 2016,

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 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 the 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 8: TO INCREASE THE UPTAKE OF MORE SUSTAINABLE TRANSPORT OPTIONS

We will continue to promote and deliver sustainable transport options as an alternative to petrol / diesel single occupancy car use which is currently being delivered through our Local Sustainable Transport Fund (LSTF) Programme. As the average commute in Leicester is 6km, this indicates that travelling to work could make walking and cycling a more attractive option. Physical activity is critical to good health which will help meet our objectives in the Public Health Framework and Climate Change Action Plan. Our LSTF 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.

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.



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

CASE STUDY: 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

ACTION 9: TO INCREASE 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, development of ticketing deals and on-going marketing and promotion. 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. Over 10% increase in patronage 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.

We plan to introduce more camera bus lane enforcement where appropriate, to continue to help improve bus services for passengers.



A426 Aylestone Road corridor

ACTION 10: TO DELIVER OUR LEICESTER CYCLE ACTION PLAN (2014 – 2024) AND INTEGRATE WALKING INITIATIVES

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 Leicestershire 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 2019.
- 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 6500m of improved shared-use path, formal adoption as Public Highway and 300+ new direction signs over 38km of National Cycle Network route and connecting links.

We have already delivered a number of initiatives to increase walking journeys. These include the opening of the dedicated New Walk walking route between the University and city centre, a comprehensive walk to school and walking in the community programmes. This Plan will maintain and build upon with these with new projects such as the Legible Leicester wayfaring and signage scheme attracting more walking journeys.



Example of new cycling infrastructure improvements.

THEME 3: IMPROVING TRAFFIC MANAGEMENT

ACTION 11: TO OPTIMISE OUR HIGHWAY NETWORK

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.

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.

We will investigate the possible introduction of idling free zones to see if their adoption would reduce local exhaust emissions significantly.

ACTION 12: TO DELIVER A PROGRAMME 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 20mph 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 40 zones.

ACTION 13: TO DELIVER A PARKING IMPROVEMENT PROGRAMME

We are currently delivering a parking improvement programme that will improve the parking we manage throughout the city. Improvements include, new signage, refurbishment of council-owned car parks, increasing the number of Civil Enforcement Officers and updating our policies in line with best practice and revised legislation. We would like car-owning residents and visitors to Leicester to choose vehicles that are



20 mph zone

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. From our consultation, Work Place Parking Levy was raised as a potential action. Benefits of a possible scheme are currently unclear. This will be reviewed as and when information from the Nottingham Levy is made available.

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 Midlands^[16].

We would seek funding, for instance, through the government's "Office for Low Emission Vehicles" grants 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 parking permit schemes and council-owned car parking tariffs, whereby pricing structure would be designed to encourage car owners to use less polluting vehicles. It is proposed that owners of low emission vehicles would be exempt from the cost of 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 coherent 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, discounts, subsidies, lower running costs and changes in national policy could influence the choice of vehicles purchased.

THEME 4: ENHANCING PLANNING & THE ENVIRONMENT

ACTION 14: TO ENSURE AIR QUALITY CONSIDERATIONS ARE EMBEDDED INTO THE NEW LOCAL PLAN TO BE ADOPTED IN 2017

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 objectives for growth of the city over the next 15 years. Consultation on our Issues and Options Paper was carried out in October 2014. The main issues raised from the consultation were improved public transport, better walking and cycling routes into the city centre and tree and woodland planting which have been included as part of our final Action Plan. The new Local Plan is due for adoption 2017.

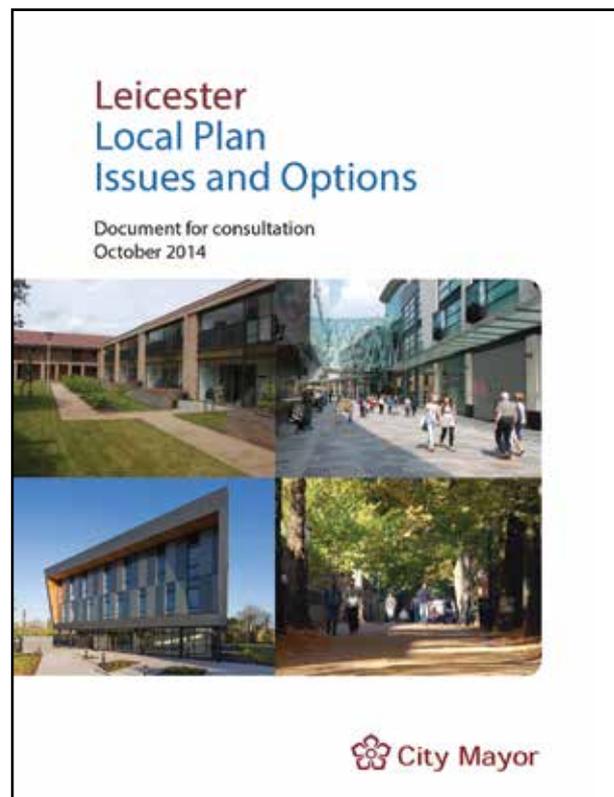
ACTION 15: TO IMPLEMENT THE LAND USE PLANNING GUIDANCE BY 2017 TO ENSURE ALL LAND USE PLANNING DECISIONS MINIMISE THE NEED TO TRAVEL BY POLLUTING VEHICLES

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 16: USING TREES AND PLANTS TO REDUCE AIR POLLUTION

In urban areas, trees, vegetation and green space can help absorb pollutants and improve air quality by absorbing pollutants, and preventing pollutant concentration. In addition to using green spaces to mitigate the effects of poor air quality, opportunities may exist to adapt our transport behaviours and utilise our cycle networks and other forms of active travel around the city centre. We will work with the local universities to find the best pollution absorbing plants and trial the use of them to combat air pollution from cars. This may include altering planting guidance in our Biodiversity Action Plan to use these plants and also trial the use of 'Green Walls'.



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 2020, 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 five 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 2020 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 traffic^[17].

The approach set out in this action plan is for the council and its partners to implement realistic and deliverable measures over the next five years that provide the most effective means to meet or better air quality targets for Leicester. Our actions and work packages 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 project 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 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 2020.

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 propose to work with our stakeholders to monitor air quality. Air quality can also be monitored using portable monitoring devices and three dimensional monitoring by the local universities. This will improve our understanding of the city's air quality.

These portable devices could also be used to monitor the effectiveness of individual actions and work packages within them. Examples of this will include the monitoring the Leicester North West Corridor Transport Scheme, and the effectiveness of the Low and Ultra-Low Emission Zones.

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 2025/26.

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.



APPENDIX A: EURO 5 AND 6 STANDARDS

Vehicle Type	Engine Standard	Fuel	NO _x (g/km)	Date of Implementation
Car & Vans <1305kg	Euro 5	Diesel	0.180	September 2011
Car & Vans <1305kg	Euro 6	Diesel	0.080	September 2015
Car & Vans <1305kg	Euro 5	Petrol	0.060	September 2009
Car & Vans <1305kg	Euro 6	Petrol	0.060	September 2015
Vans >1305kg and <1760kg	Euro 5	Diesel	0.235	September 2011
Vans >1305kg and <1760kg	Euro 6	Diesel	0.105	September 2015
Vans >1305kg and <1760kg	Euro 5	Petrol	0.075	September 2010
Vans >1305kg and <1760kg	Euro 6	Petrol	0.075	September 2015
Vans >1760kg and <3500kg	Euro 5	Diesel	0.280	September 2011
Vans >1760kg and <3500kg	Euro 6	Diesel	0.125	September 2015
Vans >1760kg and <3500kg	Euro 5	Petrol	0.082	September 2010
Vans >1760kg and <3500kg	Euro 6	Petrol	0.082	September 2015
Lorries and Buses	Euro V	Diesel	2.000*	October 2008
Lorries and Buses	Euro VI	Diesel	0.400*	December 2013

* measured in g/kWh

APPENDIX B: ACTIONS SUMMARY TABLE

Action	Tasks	Partners	Economic Action Plan	Sustainability Action Plan	Closing the Gap	Local Plan	Local Transport Plan	Timescales	Air Quality Impact	Mode of Travel Action will address	Estimated Annual Tonnage of NO2 that Action can reduce
Theme 1 : Reducing Transport Emissions											
1. To lobby and work with 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 uptake of low emission vehicles.	Large vehicle idling technologies	SMMT, DfT						November 2015 Ongoing	High. New policy / fiscal controls over diesel vehicles applied at this level would have a fundamental positive impact on air quality	All	3226
	Lobby DVLA for NOx emissions check for diesel cars	DVLA			Yes			November 2015 Ongoing			
	Lobby for cheaper ULEVs etc.	OLEV, SMMT						March 2015 - Ongoing			
	Alter tax incentives for petrol, hybrid and LEVs	DfT						November 2015 Ongoing			
	Government to better campaign the effects of NOx and Best Practice	DfT, OLEV, DEFRA						November 2015 Ongoing			
	Retrofitting Scheme for all taxis - Gas etc.	Taxi Operators, Licencing, Leicestershire District Councils		Yes				March 2015 - Ongoing			
	Lobby for more funding	Dft, DEFRA, OLEV, EU					Yes	N/A			
	Introduction of a EURO VII engines standard	Dft, OLEV	Yes	Yes				March 2015 - Ongoing			
2. To introduce a Low Emission Zone focussed for buses using Haymarket Bus Station and St Margaret's Nus Station by 2017 and work towards an ultra-Low Emission Zone (ULEZ) for all vehicles over the period to 2026.	Low Emission Zone	Bus Companies, Taxi Operators		Yes	Yes	Yes	Yes	July 2015 - December 2017	High. The LE2 would have significant impact on air quality focussed on the city centre	Buses; Diesel Cars	365
	Ultra Low Emissions Zone	Dft, local business			Yes	Yes	Yes	January 2018 - April 2021			
3. To work with Bus, Freight, Rail and Taxi transport sectors to reduce their environmental impact	Investigate feasibility of gas buses	Bus Operators, Low Emission Strategies, Ricardo AEA						April 2015 - January 2016	Low with potential for High impact over time.	Buses	340
	Bus retrofitting	CentreBus, Arriva	Yes	Yes			Yes	September 2014 - December 2016			
	OLEV Low Emission Bus Scheme	Bus Companies, Low Emission Strategies, Ricardo AEA						April 2015 - March 2019			
	OLEV Taxi Scheme	Taxi Operators						March - December 2019			
	Reduce harmful emissions from taxis by exploring the potential of cleaner engine taxis	Low Emission Strategies / Ricardo AEA					Yes	N/A			

Action	Tasks	Partners	Economic Action Plan	Sustainability Action Plan	Closing the Gap	Local Plan	Local Transport Plan	Timescales	Air Quality Impact	Mode of Travel Action will address	Estimated Annual Tonnage of NO2 that Action can be reduced			
Theme 1 : Reducing Transport Emissions														
3. To work with Bus, Freight, Rail and Taxi transport sectors to reduce their environ impact	Freight Consolidation Centre	Leicester Freight Quality Partnership, DHL					Yes	April 2016 onwards	High. Would reduced the number of larger diesel vehicles on the road	HGV's; LGV's	1088			
	Courier Consolidation Centres	Leicester Freight Quality Partnership		Yes			Yes	April 2016 onwards						
	Freight Training	Freight Transport Association, Road Haulage Association, Leicester Freight Quality Partnership					Yes	April 2016 onwards						
	Freight Survey and Best Practice	Leicester Freight Quality Partnership	Yes	Yes			Yes	April 2016 onwards						
	Develop fuelling infrastructure, including shared arrangements between sectors (e.g. gas fuelling, electric changing points)	British Gas, Intelligent Energy, ITM Power, Cenex		Yes				N/A						
	Rail Freight Hub	Network Rail				Yes	Yes					Medium. Could reduce the number of fleet vehicles on the road	N/A	
	Support Network Rail on the electrification of the Midland Main Line	Network Rail	Yes	Yes	Yes	Yes	Yes	Ongoing				Low. Leicester Railway Station and associated rail lines are not in the Air Quality Management area, however it would improve the air quality		
4. Increase the uptake of Ultra-Low Emission Vehicles by residents and business	Greener, safer driving for business	Local business	Yes	Yes		Yes	Yes	November 2015 Ongoing	Low. Teaches techniques to drivers to enable them to drive in a style that is more fuel efficient	All	3226			
	Go Ultra Low City Bid	British Gas, Tusker, Edwards & Edwards, Cenex, Ricardo AEA, Low Emission Strategies, Pick Everard		Yes			Yes	March 2015 - November 2015	High. If nearly 10% uptake of LLEV by 2021 is achieved large contribution to the reducing in air pollution is activated	Diesel Cars; Petrol Cars	1784			
	Facilitate and further promote infrastructure for ULEV	Intelligent Energies, ITM Power, Western Power Networks		Yes				March 2015 - December 2016						
5. Progressively reduce emissions by 50% by 2025 from the Council's fleet operations	Reduction of fleet vehicle emissions	Leicestershire Fleet Managers Group		Yes				March 2015 - April 2021	Low. Whilst it would be important pathfinder for others over time, it would have a low impact directly as given limited numbers	Diesel LGV				
	Greener, Safer driving	Leicestershire Fleet Managers Group	Yes	Yes		Yes	Yes	November 2015 Ongoing						
6. Implement a sustainable public procurement guide in 2016								April 2015 - April 2021	Low. It would identify additional air quality related contract requirements	N/A	N/A			

Action	Tasks	Partners	Economic Action Plan	Sustainability Action Plan	Closing the Gap	Local Plan	Local Transport Plan	Timescales	Air Quality Impact	Mode of Travel Action will address	Estimated Annual Tonnage of NO2 that Action can be reduced
--------	-------	----------	----------------------	----------------------------	-----------------	------------	----------------------	------------	--------------------	------------------------------------	--

Theme 2 : Promoting Sustainable Transport

7. Deliver CONNECTING LEICESTER Phase II initiative to encourage walking and cycling	City Centre Improvements	Local businessess	Yes	Yes	Yes	Yes	Yes	Ongoing	Low initially. There would be lower exposure to harmful pollutants whilst improving health of people generally through active travel. Benefits will increase as a comprehensive route network develops	Buses: Diesel Cars; Petrol Cars	
	Haymarket Bus Station	Bus Companies	Yes	Yes	Yes		Yes	June 2015 - Spring 2016			
	Major Highway Improvement Schemes					Yes	Yes	Ongoing			
8. To increase the uptake of more sustainable transport options		Sustrans, British Cycling, Ramblers Association			Yes	Yes	Yes	Ongoing	Low initially. The impact on air quality should increase over time, as further investment and actions will encourage a greater model shift from car use.	Buses: Diesel Cars; Petrol Cars	
9. To increase the number of public transport trips	Real time transport information	Bus Companies					Yes	To November 2015	Low initially. The impact on air quality should increase over time, as further investment will encourage a greater model shift from car use.	Buses: Diesel Cars; Petrol Cars	
	Smart Card	Bus Companies					Yes	To November 2016			
	Marketing / promotion	Bus Companies					Yes	Ongoing			
	Ticket deals	Bus Companies	Yes	Yes			Yes	To November - onwards			
10. Deliver our Leicester's Cycle City Delivery Plan (2015 - 2024) and integrate walking initiatives		British Cycling, Sustrans, Ramblers Association			Yes	Yes	Yes	Ongoing	Low initially. The impact on air quality should increase over time, as further investment will encourage a greater model shift from car use.	Diesel Cars; Petrol Cars; Motorcycles	

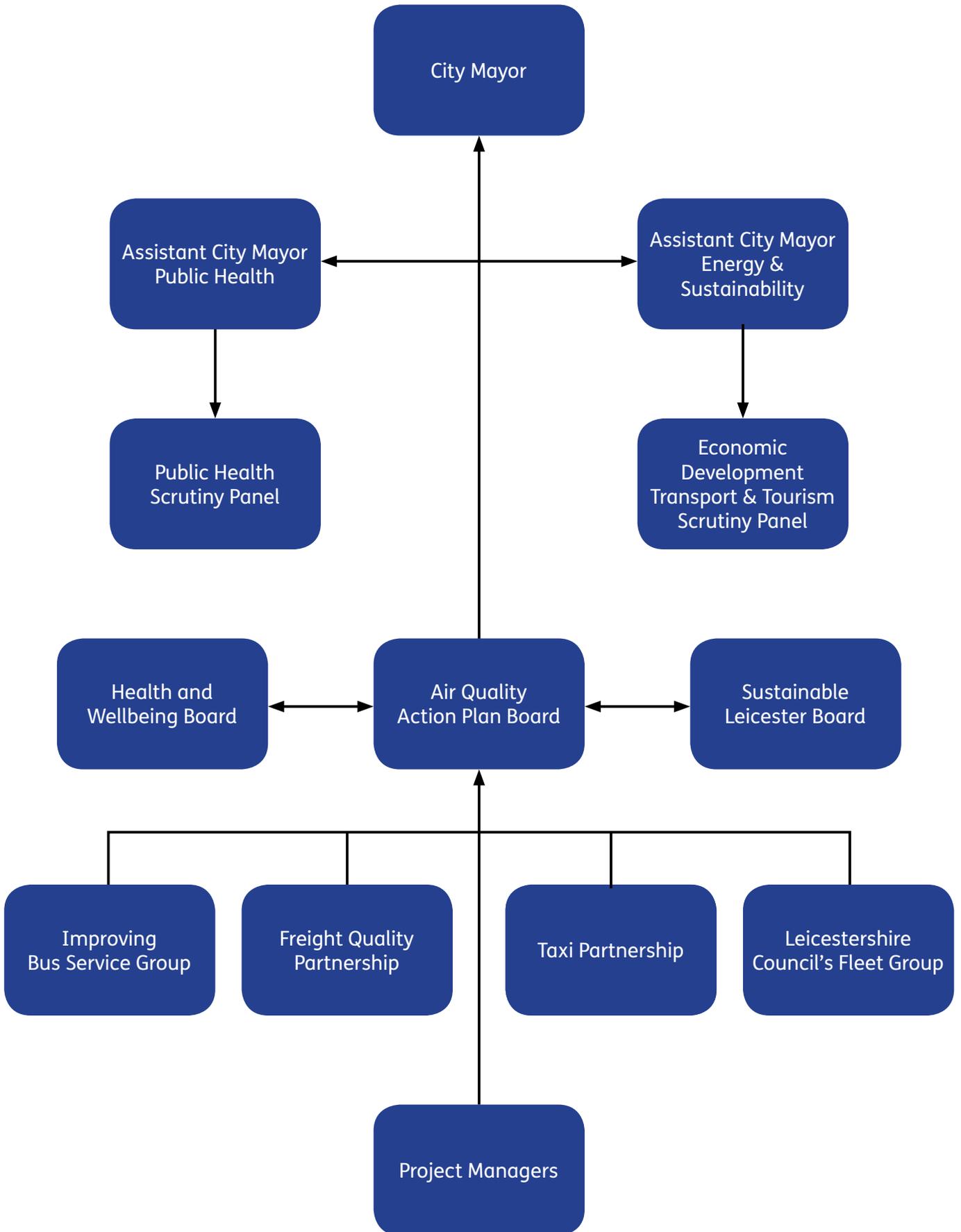
Theme 3 : Improving Traffic Management

11. To optimise our highway network	Traffic Network Optimisation			Yes	Yes	Yes	Yes	Ongoing	Low. Improvements will have localised impacts but over time will contribute to improving effectiveness of the wider highway network	All	
	Highway Management Plan					Yes	Yes	Ongoing			
12. To deliver a programme of 20 mph zones		Residents Associations	Yes	Yes				Ongoing	Low. Can bring improved localised air quality and encourage walking and cycling	All	
13. To deliver a parking improvements programme			Yes	Yes		Yes	Yes	March - September 2016	Low. With potential for medium impact over time	All	

Theme 4 : Enhancing, Planning and Environment

14. To ensure air quality considerations are embedded onto the New Local Plan to be adopted in 2017						Yes	Yes	Ongoing - October 2016	Medium impact over time	N/A	
15. To implement the Land Use Planning Practice Guidance by 2017 to ensure all land use planning decisions minimise the need to travel by polluting vehicles						Yes	Yes	Ongoing - October 2016	Medium impact over time	N/A	
16. Using plants to reduce air pollution		University of Leicester						March 2016 - March 2020	Low impact	N/A	

APPENDIX C: AIR QUALITY ACTION PLAN BOARD REPORTING STRUCTURE



References

1. Leicester City Council Traffic Cordon Survey 2014
2. Office for National Statistics: www.ons.gov.uk/ons/rel/census/2011-census-analysis/distance-travelled-to-work/
3. WHO (2014) <http://www.who.int/mediacentre/factsheets/fs313/en/>
4. IHME <http://ghdx.healthdata.org/global-burden-disease-study-2010-gbd-2010-data-downloads>
5. PHE 2014 Estimating local mortality burdens associated with particulate air pollution. PHE: London
6. Ricardo-AEA: LESTAir – Low Emission Strategy: Business and Implementation Plan (2014)
7. £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).
8. <https://www.gov.uk/government/statistical-data-sets/veh01-vehicles-registered-for-the-first-time> (Table VEH0130)
9. https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/69334/pb13081-tech-guidance-laqm-tg-09-090218.pdf
10. <http://laqm.defra.gov.uk/review-and-assessment/tools/emissions-factors-toolkit.html>
11. A SCRT retrofit is converting nitrogen dioxides with the aid of a catalyst into diatomic nitrogen, N₂ and water, H₂O.
12. http://uk-air.defra.gov.uk/assets/documents/no2-consultation-2015/AQplans_UK0011.pdf
13. AEA Ricardo (2014) LESTAir Low Emission Strategy: Business and Implementation Plan.
14. AEA Ricardo (2014) LESTAir Low Emission Strategy: Business and Implementation Plan (page 7).
15. http://www.airqualitynow.eu/city_info/leicester/page4.php
16. http://uk-air.defra.gov.uk/assets/documents/no2ten/140708_N02_projection_tables_FINAL.pdf
17. <https://consult.defra.gov.uk/airquality/draft-aq-plans/>

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.

Air Quality Objectives

Limit Values set by the UK Government, usually expressed as a minimum concentration to be achieved within a specific timescale.

Air Quality Review and Assessment

The process by which local authorities review current and likely future air quality and assess whether air quality objectives are currently being achieved or are likely to be achieved.

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.

DfT - Department for Transport

The Government department responsible for 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.

Exceedance

When a UK objective or EU Limit Value is not achieved.

Hourly Mean

The average over an hour of concentrations measured (or predicted) for a pollutant.

Local Plan

The Local Plan sets out the spatial strategy for the area.

Low Emission Zone

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

Microgramme (μg)

One millionth of a gramme

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.

Glossary

Particulate matter (PM₁₀)

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

Particulate Matter (PM_{2.5})

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 dioxide with the aid of a catalyst into diatomic nitrogen, N₂ and water, H₂O.

SMMT – Society of Motor Manufacturers and Traders

The trading organisation that acts as the voice of the UK motor industry, promoting its position to government, stakeholders and the media.

Ultra Low Emission Vehicle

A car that produces 75g or less of CO₂ per kilometre from the tailpipe.

Notes

Notes

Notes





Image 14.1 from library (New Walk)