

Stakeholder engagement and long list of measures

LestAir Technical Paper 1



Report for Leicester City Council

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1 Introduction

Leicester City Council has estimated the impact of air pollution on the health of Leicester residents to be of the order 250 premature deaths per year, which is equivalent to some £7.5M per year worth of damage to families, businesses and the Leicester economy as a whole (based on IGCB estimates). The area where pollution levels exceed health based objectives covers about 3% of Leicester's population many of whom are amongst the most deprived of the city's residents. This area has been defined as an Air Quality Management Area (AQMA) and has been in place since 2000, with an associated action plan to tackle pollution levels. Nonetheless, there remain widespread and substantial exceedances of the annual mean objectives for nitrogen dioxide (NO₂). There is also little evidence of a robust downward trend in levels; in fact in recent years the situation has deteriorated in some areas.

Although the AQMA has been declared on the basis of NO₂, both NO₂ and coarse particulate matter (PM₁₀) are of concern. While the daily and annual mean PM₁₀ objectives were achieved at all sites in 2011, at two sites only a small margin remained for achieving the daily objective. In addition, there is a growing preoccupation with the health impacts of fine particulate matter (PM_{2.5}). The main pollutant source in Leicester is road traffic, which accounts for over 90% of NO_x at key locations in the AQMA. A significant proportion of these emissions come from heavy duty traffic - trucks and buses.

The LestAir project has been set up to build on existing work by the Council to tackle these problems and identify new solutions going forward. It is intended to develop an integrated package of measures in the form of a Low Emission Strategy (LES) which will reduce emissions from transport activity and contribute to meeting air quality objectives.

An approach with high regulation content on the London model is perceived nationally and locally to be politically unacceptable, and excessively costly in relation to benefits. Therefore the imposition of a Low Emission Zone (LEZ) by regulation will only be considered as a last resort. Based on this premise there will be an emphasis on the following key elements:

- Stakeholder engagement and partnership solutions, as opposed to regulation;
- Development of a clear evidence base for the cost-benefits of the measures identified;
- Understanding the co-benefits of an integrated approach to air quality and carbon, to maximise the cost-benefits of the measures proposed;
- Set out a viable, time-based mobilisation plan as part of the Business Plan, as opposed to theoretical reporting;
- Identify existing sources of funding and operational savings, as opposed to unrealisable, socio-economic opportunity costs (although the latter remain a driver of the scheme);

This technical note sets out the work that has been carried out to date on stakeholder engagement and the development of a long list of measures to take forward into the next stages of assessment. Below we summarise the engagement process and set out the proposed structure for the Low Emission Strategy and the proposed measures to be taken forward for further assessment.

2 Engagement approach

A key element of the project is to engage with local stakeholders both internal to the City Council and external. Three main engagement workshops were held, two with City Council officers and one with external stakeholders. These have been complemented by a number of bi-lateral meetings with stakeholders who could not make the main workshops.

The work with internal stakeholders had two main purposes; firstly to explore existing actions and policies being implemented that will have an impact on transport emissions, and secondly to consider additional measures that could be developed as part of a wider Low Emission Strategy. Our work with external stakeholders built on the discussion with City Council officers and explored the initial ideas being generated.

Tables 1 and 2 below provide a list of the stakeholders engaged through the workshops or through separate meetings:

Table 1 City Council Stakeholders

Name	Role/Organisation
Andrew Smith	City Planning
Andy Salkeld	Cycling Development Officer,
Bal Minhas	Travel Plans Officer
Barbara Whitcombe	Street Scene Enforcement
Barry Pritchard	Transport Projects Manager
Bona Matturi	Transport Senior Engineer
Darsheet Chauhan	Leicester Energy Agency
David Ison	City Transport Fleet
Duncan Bell	City Environment Team
Ivan Brown	Public Health
John Dowson	Bus Partnership Manager
Karen Surdhar	Project Manager Supply Leicester
Manjeet Virdee	Public Lighting Manager
Michael Jeeves	Travel Plan & Development Co-ordinator
Mike Richardson	Head of Planning
Neal Cooper	Traffic management - Rising Bollards, access control
Neil Bayliss	Head of City Procurement
Nick Morris	Head of City Energy Services
Paul Statham	City Planning
Phil Knott	Traffic management - traffic lights, VMS, RTPI
Sally Slade	Project Manager LSTF
Sarah Harrison	City Centre manager
Steve Dibnah	Director Sustainable Economic Growth

Table 2 External Stakeholders

Name	Role/Organisation
Alexandra Archibald	Enterprise and Applications Specialist, G-Step
Andy Brooks	Member of public
Hannah Wakley	Friends of the Earth
Henrik Jespersen	General Manager - Ramada Encore Leicester
Keith Shayshutt	Head of Development Trent Barton (Stagecoach)
Prof Allan Wells	University of Leicester (G-Step)
Sally Gilson	Policy Manager – Midlands- Freight Transport Association
Steve Smith	Area Business Manager- Arriva Midlands
Svetlana Zolotikova	University of Leicester
Teresa Raventos	University of Leicester
Terry Kirby	Campaign for Better Transport (Leicestershire)

The ideas and views of all of these stakeholders have feed into the development of the long list of measures and potential structure of the Low Emission Strategy set out in the following sections.

3 Geographical Scope of the LES

The boundaries of the Air Quality Management Area in Leicester are shown in Figure 1 below. Essentially it covers the central area of the city, the key radial routes in to the city and some parts of the outer ring road.

Figure 1 Leicester AQMA



The main cause of air pollution in the AQMA is emissions generated from vehicle traffic on these main radial roads and in the city centre. So although the AQMA is technically defined by exposure and is affected by emissions generated across a wider area, it does provide a useful geographic approach to a Low Emission Strategy for the city. Therefore we propose focusing LES measures on three geographic areas:

1. *The City Centre* – the area inside and including the inner ring road. This is a focal area for the City and one where environmental quality will be extremely important. It is also a focus of renewal and development effort including ‘Connecting Leicester’.

Measures in this area could be combined into an overall 'Environmental Zone' or 'Clear Zone' concept.

2. *Key corridors* – the main radials into the city. These are central to the flow of movement into and around the city, and again link to the concept of 'Connecting Leicester'. Improving movement and reducing emissions on these corridors will provide both environmental and economic benefit. Measures can be grouped here in a concept of 'Quality' or 'Environmental' corridors. Corridors are also useful in that measures can be developed corridor by corridor to help concentrate resources.
3. *City wide* – some measures will be applicable across the city and help reduce emissions across the whole area supporting emissions reduction in the AQMA.

In developing a package of LES measures we will consider how the measures can be grouped or applied in these areas giving a geographical focus to the actions.

4 Long List of Measures

The intention of the LestAir project is to generate a package of measures that where possible are based on partnership working and voluntary arrangements. Regulatory measure are seen as costly to implement and enforce, and politically unpopular. However, as part of this initial sifting of ideas regulatory measures will be included to provide full coverage of options, but also as they may be necessary to meet air quality objectives in the longer term.

The measures that we have set out have been grouped into three broad categories:

1. *Promoting low emission vehicles* – a range of measures that can support the uptake of low or zero emission vehicles across different parts of the vehicle fleet.
2. *Improving efficiency* – measures that can improve the way vehicles are used, or people and goods moved, in order to reduce emissions.
3. *Managing demand* – primarily measures around mode shift, but also those that help reduce overall transport activity.

These measures can be applied to the different geographical areas described above providing geographically based packages or schemes. This gives rise to a matrix approach for the LES measures where they are grouped by measure type and geographical area. Our suggested set of LES measures set out in this matrix approach is provided below. In the matrix we also provide a column for the potential implementation mechanism for the measure.

Table 3 Long List of Measures

Measure	Mechanism	Centre	Corridor	City-wide
<i>Promoting low Emission Vehicles</i>				
Low Emission Zone (LEZ) (Environment/Clear Zone) <ul style="list-style-type: none"> • Emission criteria for accessing all or part of the central area. Access control/ANPR • Euro 4/5/6 – Bus and HGV • Further car traffic restrictions 	TRO	✓		
EcoPass system (used in Milan) access charging related to emission standards. <ul style="list-style-type: none"> • Based on central area • Charges related to emissions, can vary depending on mode. • ANPR enforcement 	TRO	✓		
Low Emission Lanes (LEL) – bus/priority lanes for low emission vehicles. <ul style="list-style-type: none"> • Allow low emission vehicles HGV/Taxi in bus lanes. Set standards for buses too. • Standard Euro5/6 • Increase amount of lanes. 	TRO		✓	

<p>Low emission parking</p> <ul style="list-style-type: none"> • Priority parking/loading bays for low emission vehicles • Parking allowances for new developments related to emissions • Parking charges related to emissions <ul style="list-style-type: none"> ○ NCP/Council car parks ○ WPL scheme related to emissions 	TRO	✓	✓	
<p>Taxi licensing – currently level Euro 3, strengthen this to Euro4/5 or provide incentives for low emission taxis such as low emission ranks in centre.</p>	Licensing	✓	✓	✓
<p>Bus emission strategy – voluntary agreement with bus operators for low emission buses on key routes. Link to improvement on bus routes so both sides get benefits.</p> <ul style="list-style-type: none"> • Euro standard based approach E4/E5/E6 • Technology approach – e.g. gas or hybrid. 	BQP		✓	
<p>Freight emission strategy – voluntary agreement on emission standards for vehicles accessing the city. Or development of alternative fuel/low emission delivery schemes. Could be linked to access improvements</p>	FQP	✓	✓	
<p>Alternative fuel infrastructure development</p> <ul style="list-style-type: none"> • EV charging points in public/commercial premises • Gas station for Bus/HGV – potential depot suitable for both 	<p>Plugged in Midlands/LT P/</p> <p>OLEV Funding</p>	✓	✓ ✓	
<p>Information portal – low emission vehicle information on LCC's new travel portal</p>	LSTF			✓
<p>LCC procurement standards</p>	procurement			✓
<p>LCC city fleet strategy – low emission fleet strategy for city. Technology hierarchy, standards for vehicle procurement</p>	Fleet, procurement			✓

<i>Improving efficiency</i>				
Priority road capacity – removing capacity for cars and increasing capacity for walk/cycling/PT and freight. Potential link to LEZ and LEL.	TRO	✓	✓	
Traffic management <ul style="list-style-type: none"> • Phasing and gating with lights • Speed limits/management • I-track type systems/results 	LTP		✓	
Freight consolidation <ul style="list-style-type: none"> • Delivery and servicing plans for new and existing sites • Freight Hub 	LTP/LSTF	✓	✓	
	LTP/LEP/growth funds	✓	✓	
Freight accreditation scheme/Ecostars/FORS				✓
Ecodriving <ul style="list-style-type: none"> • Public • Freight (link to above) • Bus 	LSTF/Info portal FQP/Ecostarts BQP/SAFED			✓
<i>Managing demand</i>				
Smarter choices – on-going work in LSTF and LTP. Include information on low emission vehicles and eco-driving	LSTF/LTP			✓
Infrastructure improvement on corridors – on-going work in LTP/LSTF/cycle city <ul style="list-style-type: none"> • Bus priority/RTI • Cycle/walking routes • Link to priority road capacity 	LSTF/LTP	✓	✓	
Promote shared modes <ul style="list-style-type: none"> • Car clubs promoting/development • Cycle hire scheme 	LTP			✓
Planning good practice – integrate AQAP into planning process. (supports much of the above)	Planning/LDF			

5 Understanding the impact of the measures

Each of the measures set out in the long list can potentially effect emissions through changing three basic parameters:

- the number and type of vehicles flowing along a road;
- the technology mix of the fleet in terms of emission standard, fuel type and so on;
- the speed of vehicles.

Each of these parameters can have a positive or negative effect on emissions. Therefore the aim of each of these measures is to adjust the parameters to have a net positive effect on overall vehicle emissions.

Below we briefly discuss the potential impact of each of these measures and summaries this in table 4

5.1 Promoting Low Emission Vehicles

Low Emission Zone – this would potentially work on the central area restricting vehicles entering this area unless they meet the given emission standard. The proposal in this case is to focus on bus and HGV traffic with potential criteria ranging from Euro 4 to Euro 6. This could be linked with further pedestrianisation of the area to reduce car traffic. The key impact of this would be to improve the emissions of vehicles operating in the area. However, there will also be a knock effect for traffic on the radials as it travels to the central area. For example most bus routes pass through the central area therefore the measure would affect most buses operating in the city. It may also deter some traffic from the area, but this is expected to be minimal as you are focusing on necessary vehicle traffic and cleaning this up.

EcoPass system – the EcoPass system in Milan is effectively an access charging scheme with charges related to vehicle emission standards. Newer vehicles of Euro 3 or above and alternative fuel vehicles may enter for free. However, older vehicles pay a progressively higher charge depending on Euro standard. The impact of the scheme was to reduce traffic flows by about 20% and dramatically change the fleet mix. Over the first three years of the scheme the number of vehicles in the charge categories reduced by some 70%.

Low emission lanes – the intention here is to introduce dedicated lanes on the radials for low emission vehicles, again primarily buses and HGVs. It would build in the existing bus lane system and where possible expand these and allow other vehicles access. The main impact of this will be to improve the emissions of buses which will be predominately using these lanes. If HGV's are allowed to use these lanes this may encourage more low emission HGV's, but may also impact on the bus speeds. Similarly if road capacity is given over to additional low emission lanes it will have an impact on other traffic on the corridor potentially increasing congestion.

Low emission parking – is again designed to encourage the uptake of low emission vehicles. The key issue here will be how many vehicles the measure will affect. Two key examples of such schemes are in Richmond and Edinburgh. These were applied to the pricing of residents parking permits, but other authorities such as York have consider adjusting charges in in public car parks. In most cases the main assessment has been on impact of parking revenues with the current fleet rather than the likely change to that fleet. Clearly the impact will depend on the scale of the charges or indeed if only vehicles of a certain emission

criteria can use the parking, but it seems likely to be small. In assessing a scheme of this nature some simple assumptions will need to be made on its likely impact on vehicle emission standards.

Taxi licencing – will clearly have an impact on the emission levels of taxis. If it is a mandatory requirement it will affect all taxis. However, in assessing the impact of this measure overall it will be necessary to get some idea of the taxi component of the car fleet operating in the city.

Bus emission strategy – the aim here is for a more voluntary approach working through the bus quality partnership. As part of the partnership the bus operators would agree minimum Euro standards for vehicles operating on a given corridor or across the city. For example Birmingham City Council has agreed a base Euro 3 emission level with bus operators from 2013, rising to Euro 4 in 2017. Potentially this is a low cost way for an authority to implement a low emission scheme, but compliance can't easily be enforced.

Freight emission strategy – this would operate in the same fashion as a bus scheme. However, it will be harder to implement across the whole sector as there are likely to be many operators. What is more likely is that a subset of key operators will join such as scheme and affect a proportion of the vehicles. However, an alternative strategy could be to develop a specific low emission vehicle project such as setting up a gas HGV fleet and refuelling facilities for some local deliveries.

Alternative fuel infrastructure – will facilitate the uptake of low emission vehicles. So for example by providing charging points it makes it easier for electric vehicles to operate in the city. However, there are many other factors which will influence the uptake of these vehicles not least their capital cost. So this is mostly likely to be effective as part of a wider strategy that also address some of these others barriers or works in partnership to develop a specific vehicle/refuelling project.

Low emission vehicle information – again like infrastructure it will help uptake, but it is only one of many factors so its actual impact will be hard to predict.

LCC procurement and fleet – these are ways in which LCC can show leadership in terms of setting standards for low emission vehicles in its own fleet and for those who supply them. In terms of the Council's own fleet introducing a low emission vehicle hierarchy for fleet procurement, as has been done in Westminster for example, helps drive a coherent approach to procuring vehicles. The overall impact will be small in terms of overall impact across the city but important. Procurement could have a larger impact and if standards are set monitoring to assess emissions benefits is important.

5.2 Improving efficiency

Traffic management – covering measures such priority road space (bus lanes) and management of the UTMC system. Generally this will be applied across the city, but in this case we are looking more specifically at the key corridors in terms of developing 'quality corridors'. Work of this nature is already being implemented on the A426 Corridor with 'Better Bus Area' funding. This is expected to increase bus patronage by 20-30%, decrease bus journey times by 7-8 minutes and reduce overall traffic on the corridor by 2-4%.

Delivery and service plans - manage and co-ordinate deliveries to a given site. TfL in London has been working strongly on these and has seen delivery trips reduced by 15-20% for a given site when this approach has been implemented.

Urban freight consolidation centres - aim to consolidate incoming freight into fewer vehicles for final delivery. Examples include Broadmead shopping centre in Bristol, Meadowhall in Sheffield and Heathrow. These can have a significant impact on the number of vehicles delivering to retail premises involved in the scheme, reducing them by some 60-70% However, only a proportion of retailers will use the scheme perhaps 20-30%, hence we might

expect a 15% in activity of freight vehicles servicing the area targeted by the consolidation centre.

Freight accreditation schemes – these schemes such as ECOSTARS aim to improve the overall performance of freight operations from procuring low emissions vehicles to improved driver training. Driver training can be a key element of such schemes and will reduce fuel consumption and hence CO₂ emissions by 6-10% over the long term. Its direct impact on other emissions is less clear.

5.3 Managing demand

Smarter choices – are essentially a whole package of soft and hard measures designed to encourage mode shift away from car to other modes. The behaviour change element is the key aspect of this in terms of travel plans, personalised travel marketing and so on. There has been a considerable amount of work done on this with the key pieces being the DfT ‘Smarter choices’ project and the Sustainable Travel Towns demonstration programme. The headline results from the sustainable travel towns programme was a 7-8% reduction in road traffic in target areas, with an estimated cost of 4p per car km removed. These kinds of measures are already being implemented through the Leicester LTP and were part of the work on the A426 corridor.

Infrastructure measures – these are critical to the success of ‘Smarter Choices’ campaigns by improving the quality of the alternatives to the car. Again these measures such as cycle and bus lanes are generally part of a wider programme of measures such as the bus corridor work or ‘smarter choices’ programmes. Their impact will be linked with these other measures.

Shared modes – these are primarily car clubs, but also cycle hire schemes such as the one in London. Evidence from the assessment of car clubs around the country is that they will reduce car usage compared to traditional car ownership and also promote lower emission vehicles. However, their overall impact will depend on the scale and up take of the car club vehicles.

Planning – the use of planning criteria can support the uptake of many of the above measures. For example by requiring new developments to have travel plans in place or car club spaces. Their overall impact will depend on the level of development in the city and may be small. However, they are key element of a long term approach to the sustainability of transport into the future.

5.4 Summary impact

Table 4 provides a summary of the potential impact of each of the measures with regards to reducing vehicle emission levels, reducing traffic level and increasing speeds. The final column of the table also indicates which measures can be modelled with our emissions model.

Table 4 Summary of potential impact of measures

Measure	Improve fleet emissions	Reduce traffic levels	Increase vehicle speeds	Ability to model
<i>Promoting low emission vehicles</i>				
Central Low Emission Zone	+++			Yes
EcoPass – emissions related access charging scheme	++	++		Yes – assume response rates
Low Emission Lanes	++		-	Yes

Low emission parking	+			No – maybe with more parking data
Taxi licensing emission standards	+			No – unless we know taxi proportion of fleet
Bus emission strategy <ul style="list-style-type: none"> • Euro standard based approach • Technology approach – gas or hybrid 	++			Yes
Freight emission strategy <ul style="list-style-type: none"> • Euro standard based approach • Technology approach – gas or hybrid 	++			Yes
Alternative fuel infrastructure development	+			No – no clear relationship between infrastructure and uptake
Information portal	+			No
LCC procurement standards	+			No
LCC city fleet strategy – Technology hierarchy, standards for vehicle procurement	+			Not for city as whole.
<i>Improving efficiency</i>				
Priority road capacity – bus and cycle lanes			+++ for target vehicles - For others	Yes as part of package
Traffic management			++	Yes as part of package
Delivery and servicing plans		++		Difficult
Freight consolidation centre (potentially linked to low emission vehicles)	+	++		Yes – assume uptake
Freight accreditation scheme	+	+		No
Ecodriving	+			Yes – assume uptake
<i>Managing demand</i>				
Smarter choices		+++		Yes – as part of wider package
Infrastructure improvement on corridors		++	++	Yes – as part of wider package

Promote shared modes <ul style="list-style-type: none"> • Car clubs promoting/development • Cycle hire scheme 	+	+		No
Planning good practice	+	+		No

Note:

+ indicates a positive effect, with scale of impact indicated from + to +++

- indicates a positive effect, with scale of impact indicated from - to ---

6 Summary and recommendations

This paper has set out a wide range of potential measures that could be taken forward into a Low Emission Strategy. We have indicated where they may apply and what kind of impact they may have in terms of affecting fleet composition, traffic flows and vehicles speeds. Alongside this work on identifying measures we have set up a city wide emissions model, described in a separate paper, in order to allow assessment of these measures. The model has been set up for a base year of 2011 and a target year of 2016. Both these modelled years are based on traffic data from the Leicester's current transport model.

In going forward we will carry out an initial emissions assessment of the selected measures and a cost benefit assessment of the potentially most effective measures. In terms of assessing the benefits we will compare both to the base year and the current modelled future year in 2016 which can be considered the 'business as usual' (BAU) scenario.

Some of the measures are not easily assessed their own or overlap with others, therefore in moving forward with the assessment we will need to define these in terms of packages that can be assessed. In doing this we will take into account that the premise of the study was that a regulation approach such as a formal Low Emission Zone should be seen as a last resort, and that the preferred approach was a more partnership/voluntary approach.

Therefore we would recommend exploring the long list of measures on the following way:

1. Identify the most appropriate *Low Emission Zone* option as a regulation approach. This would look at the Central LEZ, EcoPass, Low Emission Lane and Low Emission Parking options.
2. Develop a *package of Bus Quality Partnership measures* considering:
 - a. Voluntary emission standards
 - b. A specific bus technology option – such as CNG or electric
 - c. Traffic management improvements
 - d. Driver training
3. Develop a *package of Freight Quality Partnership measures* considering
 - a. Voluntary emission standards
 - b. A specific HGV technology option/scheme – such as CNG or electric
 - c. Freight consolidation
 - d. Delivery and servicing plans
 - e. Driver training/Ecostars
4. *Complementary demand management measures* to support mode shift and delivered through on going LTP and LSTF work

The study will then be able to assess how a more regulatory approach compares with a package of partnership/voluntary measures. This provides the evidence base for going forward and deciding what elements to include in a Low Emission Strategy.

The next steps of the study will be:

- Initial sifting of these measures to identify the preferred LEZ and partnership measures/packages to take forward.
- Further definition of the measures/packages, how they will apply in Leicester and how they can be assessed
- Emissions and cost benefit analysis of the selected measures.

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