

SODC LES Study Technical Working Note 2: LES Feasibility Study results

1 Introduction

This report presents the results of LES work Package 2, the feasibility assessment of the LES concepts for South Oxfordshire. The work further develops the initial LES ideas identified in the scoping phase of the work, and carries out an emissions and air quality assessment and cost benefit analysis.

2 General principles of Low Emission Strategy for South Oxfordshire

The Low Emission Strategy (LES) is identified as a key action within the Council's formal Air Quality Action Plan (AQAP). It will complement the AQAP by providing an overarching approach to transport emissions reduction for the District and an evidence base on the emissions impact of this approach.

In setting out the LES a number of key principles were established by the steering group:

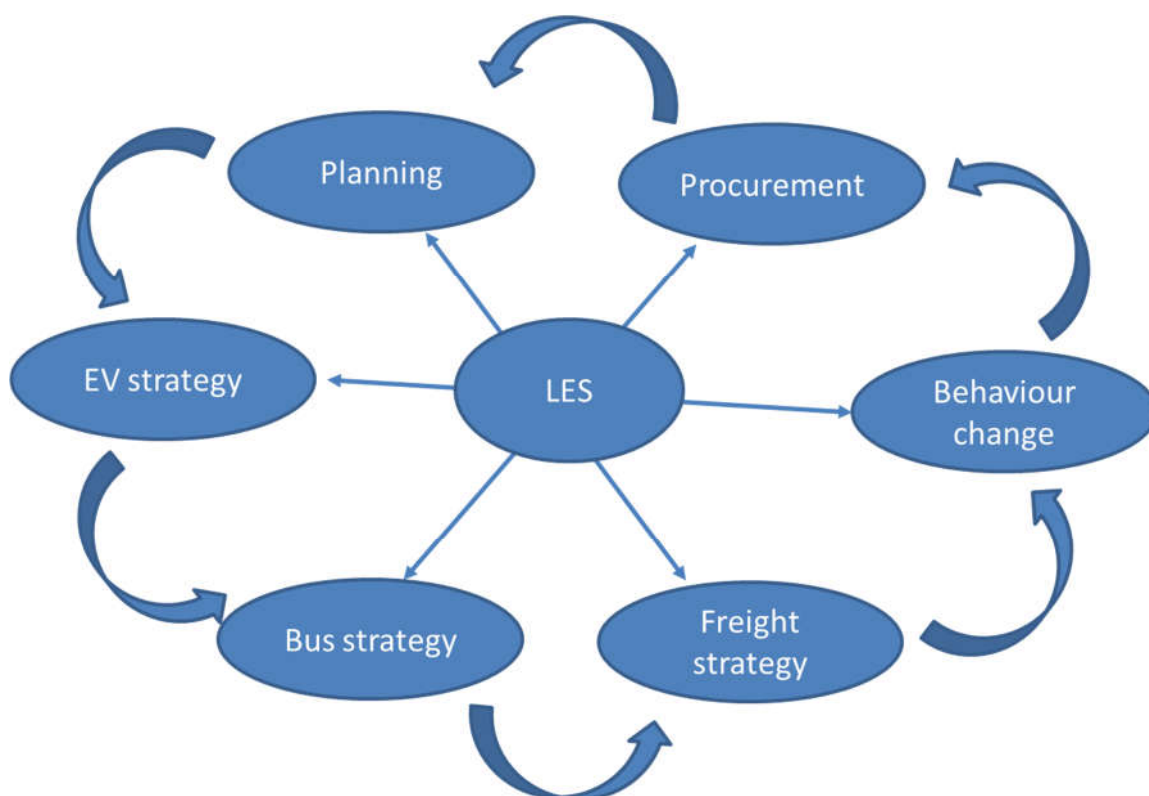
- The LES should be seeking to reduce both air pollution and climate related emissions from transport in an integrated way.
- It will need to consider the wider context of South Oxfordshire and potentially actions with a wider set of partners. In particular it needs to recognise:
 - Policies and programmes that are developed jointly with the Vale of White Horse District Council who are its partner authority;
 - Activities that are best carried out at a county level working through the Oxfordshire air quality group.
- The LES should support the economic development aspirations of the Council, in particular
 - Helping understand how improved environmental quality supports economic growth;
 - Exploring links with the Local Enterprise Partnership and wider business benefits from low emission activities.

Working with the LES steering group 6 core themes were identified for the LES and are developed in more detail below. The core themes are:

- Low emission planning
- Low emission procurement and licencing
- Electric vehicle strategy
- Bus emission strategy
- Freight emission strategy
- Low emission behaviour campaigns

Each of these themes are not separate but overlap and will need to work together as a coherent whole in order to provide an effective LES. For example the EV strategy will use planning and procurement powers to promote the uptake of vehicles, and the low emission behaviour includes

eco-driving and anti-idling that will also be reflected in the bus and freight emission strategy. This integrated approach is illustrated below.



3 Development of the key themes

Further deskwork and consultation has been carried out to collect more information and evidence about the themes and measures in the LES, exploring the local context and wider experience.

Further consultation has included discussions with:

- County transport team – initial meeting had, further meetings possible
- Planning – not yet done
- Procurement – meeting done and suggested procurement guidelines drafted
- Licensing – not yet done
- Fleet – not yet done, but may need exchange of information only
- Parking team – not yet done

3.1 Low emission planning

STATUS: need to meet planners to talk about strategic approach

The use of development planning policy is a key lever that the council can use in terms of driving a long term vision of reducing emissions from transport. It needs to be tackled from two perspectives:

- *A strategic approach to development allocation* – understanding more clearly how development will impact on emissions and air quality in the district. We suggested this is assessed by looking at the proposed strategic allocations in the context of a district wide

emissions model. This model will pull together data from the NAEI, consider potential trip generation using the LES Toolkit, assess total emissions generation and consider potential impact on the AQMAs. This can then be used to consider adjustments to the current allocation policy.

- *Developer guidance* – which is already being set out in the AQAP and provides a framework for a more detailed response to specific development applications. This will be considered an element of the LES but will not be considered further in this feasibility work as it is already in place.

3.2 Low emission procurement and licencing

STATUS: suggested procurement guidelines provided and set out in Annex 1. Licencing team still to meet.

This theme will set out the potential approach the council can take in using its procurement and licencing powers to improve vehicle emissions. The feasibility work will pull together existing best practice and consider applicability within the SODC context. It will also take account of the Social Value Act and the Low Carbon Vehicle Procurement Directive. It will focus on

- Setting standards for transport services
- Consideration of transport emissions impact of wider services
- Supporting local low emission business – e.g. low emission taxis, low emission deliveries, etc.
- Emission standards for taxis

3.3 Electric vehicle strategy

STATUS: desk review complete, with material set out below. Need to meet parking team to discuss EV charging/parking

Emissions from cars, especially diesel cars, are a key aspect of the air quality problems in all of the AQMAs and the dominant issue in Henley. Electric vehicles have zero tailpipe emissions and therefore offer significant potential to help tackle local air quality issues (although account must be taken of air pollution caused by electricity generation when considering their overall air quality impact). However their ability to help improve local air quality is dependent on the overall percentage of the vehicle fleet which they represent.

In the UK overall, in 2012, cars eligible for the Government's Plug-in Car Grant accounted for just 0.1% of new car sales. Even hybrid cars, which are now well established in the market only captured 1.2% of sales. Norway is the country where electric cars have achieved the highest market share at 5%.

Estimates of future market shares for plug-in hybrid and battery electric cars vary widely. However most experts predict their market share will be somewhere between 2-10% by 2020 and 20-50% by

2030.¹ These wide ranges are due to the many uncertainties around factors which will strongly influence plug-in vehicle sales. These fall into two main areas:

1. **Technology breakthroughs** – Primarily reducing the cost and improving the performance of batteries and other energy storage devices.
2. **Government policy** – Policies to promote the uptake of electric vehicles can have a significant effect on sales. There are a range of options available, but perhaps the most effective are measures to reduce the additional upfront purchase price.

In October 2013, the Nissan Leaf battery electric vehicle (BEV) was the best-selling car in Norway. This has been achieved through a combination of policies designed to make plug-in vehicles an attractive option. BEVs are exempt from import taxes and VAT meaning that a Nissan Leaf in Norway costs about the same as a 1.4 litre petrol-engined Volkswagen Golf.² In the UK the Nissan Leaf retails for about £10,000 more than the Golf, so even after the £5,000 Plug-In car grant, it is £5,000 more expensive. Norway also provides BEV owners a range of benefits including exemption from all road tolls, free recharging facilities and parking and permission to use bus lanes to avoid traffic congestion.

Even if measures were put in place which meant battery electric vehicles achieved a 5% share of new vehicle sales in the UK by 2015, rising to 10% in 2020, then BEVs would still account for less than 5% of the total fleet by 2020. As a result their near-term potential to achieve improvements in air quality is likely to be limited. *In terms of a target for EV penetration in South Oxfordshire, and to be used for the purposes of modelling, we propose a basic target of 2% by 2020 and a stretch target of 5%.*

3.3.1 Measures to encourage take-up of plug-in vehicles

The RAC Foundation published a report 'Going Green' (November 2011) examining what measures local authorities have available to them to promote the uptake of low emission vehicles.³ It concluded that many of the powers available to local authorities to encourage use of low and ultra-low emission vehicles were not being used. It identifies four main areas where opportunities are available:

1. *Planning policies* – which allow easier provision of recharging points.
 2. *Parking regulations* – which allow incentives for lower carbon vehicles in both on-street and off-street locations.
 3. *Highway and access measures* – for example designated lanes available only to low carbon vehicles, differentiated congestion charging and low emission zones.
 4. *Procurement and supply chain measures* – allowing and encouraging local authorities to develop vehicle procurement policies which prioritise low and ultra-low emission vehicles.
- Note: The Cleaner Road Transport Vehicles Regulations, which came into force in July 2011, require local authorities to take into account energy and environmental impacts when

¹ RAC Foundation (2013), *Powering Ahead*. Available here: <http://www.racfoundation.org/media-centre/powering-ahead-future-low-carbon-cars-fuels>

² <http://www.reuters.com/article/2013/03/13/us-cars-norway-idUSBRE92COK020130313>

³ <http://www.racfoundation.org/research/environment/going-green-report>

purchasing road transport vehicles (including cars and light commercial vehicles, buses, and commercial vehicles such as trucks or refuse trucks).

5. *Developing local recharging infrastructure* – supporting greater confidence in EV use through providing recharging facilities for EVs in off-street public and private car parks.
6. *Working with local business to support uptake of EV* – working with both business fleets and the vehicle supply and maintenance companies to foster a greater use of EV's. Working with captive vehicle fleets, with the potential for depot based recharging, can be much more productive than working with private motorists.

The aspects of promoting greater use of EV's and other low emission vehicles through planning and procurement are already considered in the LES themes on these topics. Therefore, the EV strategy should focus on developing a recharging infrastructure, parking incentives for EVs and working with businesses to encourage use of EV's in fleets including the Councils own fleet.

3.3.2 Re-charging infrastructure

Local authorities can install recharging facilities for EVs in off-street public and private car parks without the need to apply for planning permission. On street charging points can be installed as permitted developed.

The Department for Transport's *Driving the Future* strategy for ultra-low emission vehicles confirms that up to £37 million will be made available through to May 2015 to support the installation of chargepoints in homes, residential streets, railway stations and public sector car parks as well as rapid chargepoints to facilitate longer journeys. A second round of bidding for this money closed in October 2013, but further rounds are expected in 2014. The funding package includes a specific grant scheme for local authorities that will support:

- on-street chargepoints in residential streets where off-street parking is not available; and
- rapid chargepoints in locations where they will support uptake of plug-in vehicles.

Publically accessible rapid chargepoints which can charge any electric vehicle in under 30 minutes are seen as critical to uptake of EVs. There are currently fewer than 100 publically accessible rapid chargepoints across the UK, but Nissan is heading a consortium to provide 74 new ones in the UK through an EU-backed project.⁴ Overall the Department for Transport's strategy document expects the number of rapid chargepoints to expand to up to 500, however there is no indication in the document that any of these will be in South Oxfordshire.

The Department also published *Lessons Learnt from the Plugged-in-Places Project* in July 2013.⁵ This document highlights that there can be huge variations in costs of installing chargepoints. To help reduce these costs it encourages local authorities to:

- Work with the electricity distribution network operator (DNO) and energy providers to identify the most cost-effective locations, particularly for rapid chargers or locations where multiple chargers are planned to be installed.

⁴ <http://www.rapidchargenetwork.com/>

⁵ https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/236750/plugged-in-places-lessons-learnt.pdf

- Consider the cost/ benefits of having a joint back office; utilising chargepoint manufacturers back offices; creating a bespoke back office or having no back office.
- Consider ways to initially lower scheme operations and maintenance costs by gaining sponsorship for electricity or back office arrangements.
- Procuring chargeposts from a variety of suppliers can help to minimise the risk of legacy network issues but may lead to back office compatibility challenges and reduce opportunity for cost savings.

Typical, however, you might expect the cost of on-street fast charge units to be £3,000-£4,000 installed and rapid charge units some £25,000 to £30,000 installed. One of the biggest variables will be any civil works required for the installation, including power connection.

The most common suppliers of public charging points in the UK are:

- [Elektromotive](#) – who supply the Elektrobay range from private home chargers through to public rapid charging facilities
- [Pod point](#) – who provide solo and twin charge posts
- [Chargemaster](#) – who provide both the supply of equipment and a back office system in the form of their Polar network. It should be noted that most of the points operated in Oxford are managed as part of this network.

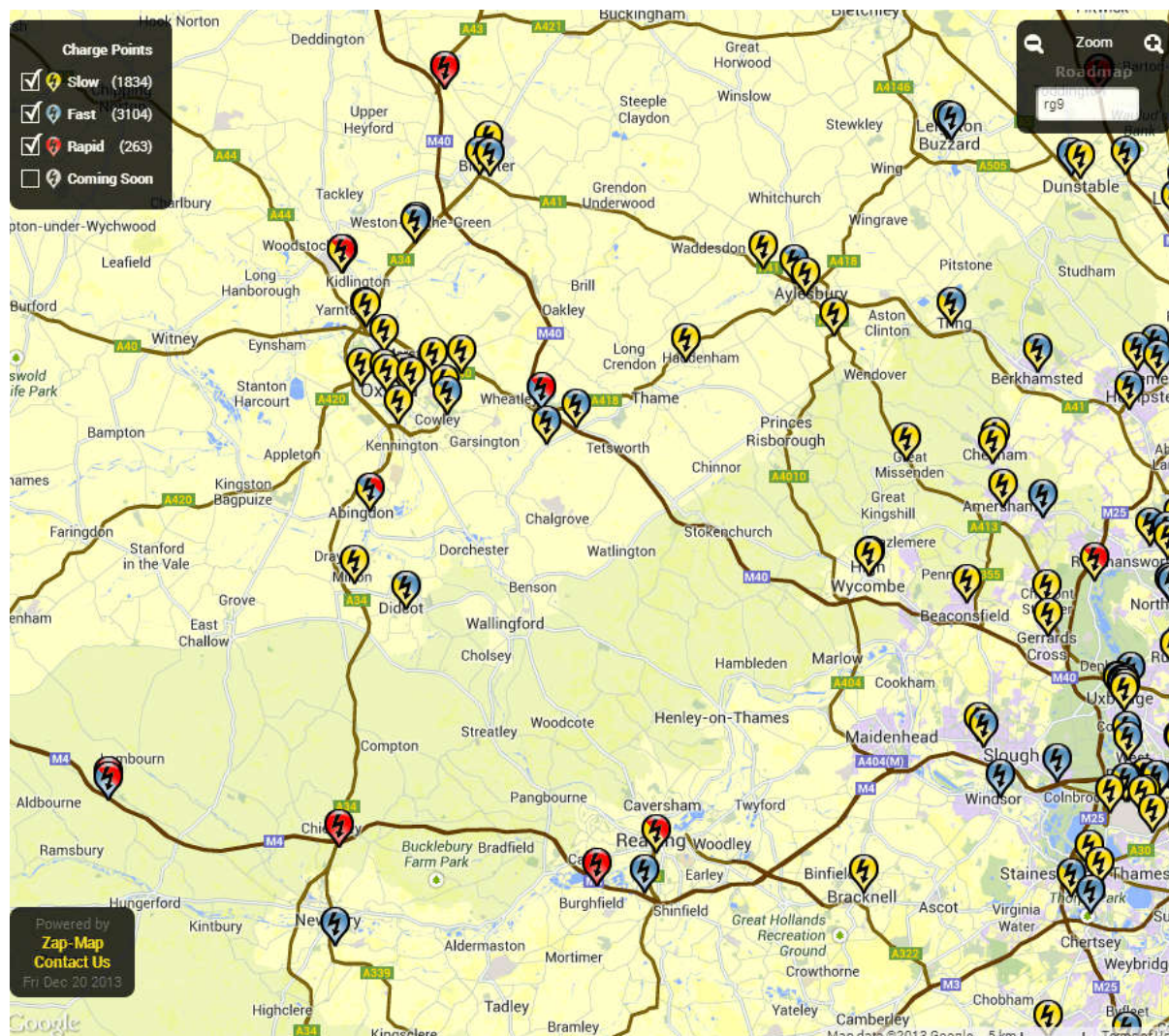
Currently there are very few points available in South Oxfordshire., as illustrated in the Figure XX below. While Didcot has two chargepoints (one slow, one fast), Henley-on-Thames, Thame, Wallingford and Watlington have none. The nearest points are at Reading to the south, and junction 8A of the M40 to the north. Therefore initially the development of any network of charging points should focus on these main areas. However, in the longer term any strategy should respond to user need to ensure that charge points support actual users. In addition there are a number of scheme offer free home charging points, such as the scheme by Chargemaster, that could be promoted to residents.

In summary we propose that the key elements of a recharging strategy should be:

- Promote home recharges to residents, as most recharging happens at home;
- Look to develop a network of fast charge points in key locations in Didcot, Henley and Wallingford, where vehicles will be parked for 3 or more hours. This includes the Councils own premises in Wallingford and key businesses. The charge points should aim to be dual chargers, with two allocated parking spaces each.
- Complement the fast charge points with a limited number of rapid charge points. Further consultation with businesses and potential users will be needed to identify the location for these chargers. Again these charge points should be dual or triple charges, with dedicated parking.
- Use existing back office payment systems such as that offered by Chargemaster or some of the Plugged in places schemes such as Source East. In addition consideration should be given to free charging in some locations such as Council sites and public car parks, such that no back office is required.

Funding for the recharging infrastructure can be sought through the next round of OLEV funding, developer contributions through the planning system and partnership working with businesses including energy suppliers.

Figure 1: Chargepoints in South Oxfordshire region (source: www.zap-map.com)



3.3.3 Parking incentives

There are several dimensions to the parking strategy that can be considered:

- *Linking the parking to the re-charging infrastructure* – in this case the incentive can be either free/low cost parking, free charging or a combination of both.
- *Priority parking for electric and low emission vehicles* – in this case with no recharging, but free or low cost parking fees.
- *On-street and off-street parking* – these spaces can be allocated in council off-street car parks or as special bays for on-street parking. The latter would involve working with the county Council.

Further discussion will be needed to SODC parking offices to look both at off and on street parking options and links with existing parking enforcement powers.

3.3.4 Working with businesses and residents

A potentially effective strategy to promote electric vehicle uptake is to identify businesses in the area which are most likely to see financial savings from switching to electric vehicles. The Energy Saving Trust offers independent, impartial advice to businesses including whole-life cost analysis for switching to electric cars and vans. This scheme, called the Plugged-in-fleets initiative can be promoted to local businesses. Any such initiative should be linked to the development of the recharging infrastructure to ensure that its support companies who are looking to invest in electric vehicles.

A more indirect approach is around raising awareness of the availability and benefits of EV's. This should include marketing and promotion of any infrastructures developments, inclusion of information on EV's and other low emission vehicles in any behavioural change programmes and working suppliers to provide information and demonstration days. Examples of this approach includes travel planning work in Bristol that include information on low emission vehicles and demonstration and displays days for EV's run in York.

Another area which is often overlooked in both local and national Government transport strategy is the potential for electric bicycles and scooters to help reduce emissions and change behaviours.. There are a number of advantages to this approach:

- Electric two-wheelers have strong potential to reduce car commuting journeys of up to ten miles (or more). Surveys indicate that the most common use of electric bicycles is to replace car commuting.
- Electric two-wheelers can help reduce congestion (particularly electric bicycles using dedicated segregated cycle routes).
- Electric two-wheelers are much more affordable than electric cars and vans.
- Electric two-wheelers do not generally need dedicated on-street recharging infrastructure (since they typically have a battery which can be removed and charged indoors using a standard household socket).
- Electric two-wheelers are often the fastest means of making shorter point to point urban journeys

Therefore consideration should be given to promoting electric bikes as part of the EV strategy and as part of the wider behavioural change work.

Lastly the Council will need to lead by example and should be looking to include electric vehicles in its own fleet and encourage use by employees. The Councils own fleet is limited but can be high profile. From an initial information on the fleet consideration should be given to purchase or lease of 2-3 small electric vans such as the Renault Kangoo to replace existing small vans, and 1-2 electric pool cars to support staff movements between the two Council main offices. The introduction of these vehicles will need to be linked to provision of recharging infrastructure.

In terms of staff owned vehicles consideration could be given to adjustments to business mileage rates to advantage electric vehicles and pay-as-you-earn schemes to help with the purchase of EV's. Pay as you earn schemes are now well established for public transport session tickets and bicycles, but increase number of organisation are also looking at using them for low emission vehicles.

3.4 Bus emissions strategy

Status: Meeting had with County transport key points of relevance:

- *Most buses already Euro 4, from Thames Transit fleet data, therefore Euro 4 LEZ may achieve little in the future, so consideration should be given to tighter limit, probably Euro 6 to make a real difference. Also need to update current source apportionment with Thames data.*
- *Bus only crossing has already been looked at in detail and is not feasibly, though specific reason not given. May need to consider removing this from analysis.*

Also note from anti-idling work, should include anti-idling promotion alongside eco-driving in bus strategy. Also Mark noted that Oxford City promote bus anti-idling, and is in there AQAP and LES.

Working with bus operators, ideally at the County level, will provide a key element of emissions reduction for the District and support further emissions reduction from mode shift. Bus emissions are particular element of the air pollution issues in Wallingford and hence this will be a particular focus for this strategy. The key elements of a strategy that we would propose to explore are:

- Setting a Euro 4 standard for all buses operating in an AQMA, ideally agreed at the County level.
- Eco-driving for all bus operators, again agreed at the County level.
- A bus only river crossing in Wallingford alongside the Euro 4 emission standard.

The work in this area will need to take account of the latest data on bus emissions performance, especially the remote sensing work being done by Oxford City Council at the moment.

3.5 Freight emissions strategy

STATUS: meeting held with County to discuss options and key points raised:

- *No county resources to signage or road furniture for clear way, would need to consider how this is funded;*
- *Trading standards have done enforcement activity on the 7.5t limit and some data is available on infringement which can be used for modelling;*
- *SODC could fund own ANPR for enforce. Suggestion was than initially mobile ANPR is used to see how it works and this could then potentially be used to look at other schemes as well. SODC AQ money could be used for this.*

Note – anti-idling work could also be linked to any EcoStars type scheme.

Freight emissions are an important element of the emissions in all of the AQMAs, if not the dominant source of emissions. Therefore in assessing measures to take forward as part of a low emission freight strategy we proposed exploring the following options:

- *Freight LEZs for Wallingford, Henley and Watlington to explore the potential benefits of such an approach, even if at present the resources to implement such schemes would be limited.*
- *A freight clearway in Watlington – which would remove parked vehicles that are causing blockages and congestion.*

- *Enforcement of the 7.5t limit* – the perception is that this is not being adhered to in key areas and better enforcement, perhaps through ANPR, would help.
- *Low emission loading bays* – which could provide an alternative to freight LEZ's
- *An Ecostars programme linked to driver training* – to help improve efficiency and reduce fuel costs and emissions.

In addition, although not to be explored in this work, the LES should support:

- Freight consolidation – which is being explored by Oxford City Council, who will look to link with local district councils;
- Interactive freight maps/app – to be pursued through the County Council.

3.6 Promoting low emission behaviours

Status: Initial discussion with County with focus on Henley, key points

- *Some work on school and business travel plans done*
- *Henley in transition potentially active and use as travel advisors*
- *Interest in electric bikes – see link to EV charging above.*

Also desk work done on anti-idling policies – see below.

Emissions from cars, especially diesel cars, are a key aspect of the air quality problems in all of the AQMAs and the dominant issue in Henley. Therefore it will be important to explore and promote within the LES a range of measures to reduce emissions from cars. In this context we propose that the LES feasibility work pull together the latest evidence and best practice on:

- Anti-idling campaigns and their effectiveness on reducing emissions;
- Transport, air quality and health behaviour change campaigns, in particular considering links with health bodies and community groups.
- Promoting low emission vehicles and driving styles, potentially linked to the campaigns above.

This work will also need to consider the wider context of travel behaviour work being done by the County. Within this theme we will consider appropriate behavioural change targets.

3.6.1 Review of Anti-idling campaigns

Anti-idling campaigns are one approach to reduce vehicle emissions and fuel consumption, and improve air quality. They typically advise drivers to switch their engine off whenever it is likely to be idling for more than one minute.⁶ Estimated fuel savings are 2-3%.⁷ Currently there is little or no evidence available of measured air quality benefits from UK sources, but some evidence is available from the US. Burning less fuel might be expected to result in reduced emissions, however this

⁶ For example TfL's FORS Anti-Idling factsheet, available here: http://www.fors-online.org.uk/resource.php?name=PF_AA_FACTSHEET

⁷ <http://dx.doi.org/10.1016/j.enpol.2013.11.074> (Paper cites DfT Freight Best Practice Fuel Ready Reckoner and FTA Carbon intervention modelling tool).

cannot necessarily be assumed, as it is also dependent on performance of the emissions aftertreatment system.⁸

Anti-idling laws are common in the US where drivers can face fines of up to \$25,000.⁹ US research has demonstrated that anti-idling campaigns can be effective at reducing levels of air pollutants including PM2.5, elemental carbon and particle number concentrations in some instances.^{10,11} However there does not appear to be similar evidence available for UK locations.

The UK Government introduced the 'stationary idling offence' in Section 6 of the Road Traffic (Vehicle Emissions)(Fixed Penalty) Regulations which came into force in 2002. This allows local authorities to enforce Regulation 98 of the Vehicle Construction and Use Regulations (1986) relating to the stopping of engines when stationary (other than owing to the necessities of traffic etc.) to prevent exhaust emissions.

A fixed penalty notice (FPN) of £20 can be issued if a driver fails to switch off the engine of a parked vehicle when requested to by an authorised officer of the Local Authority. The driver then has 28 days to pay or the fine rises to £40. However one source indicated that by May 2008 there were no reports of any FPNs having been issued in conjunction with stationary idling offences.¹² In 2010, publication of data on FPNs issued by local authorities did not include any for idling offences.¹³ Communications received when researching this technical note indicate that at least two local authorities who have adopted these powers still have yet to issue an FPN.

A 2009 report for the Scrutiny and Petitions board of Renfrewshire County Council (Scotland) examined the issue of vehicles found to be idling unnecessarily.¹⁴ It highlighted that the requirements for any council wishing to adopt powers to enforce anti-idling stipulate minimum levels of publicity which include the need for adverts to be placed in both national and local newspapers. The report also included evidence from seven other Scottish Councils who had implemented powers, only three of whom had issued any FPNs. The report concluded that adopting the powers would have ongoing cost implications which would not be covered by any income generated through FPNs. As a result it advised against adopting powers to issue FPNs, but instead to raise public awareness through other publicity campaigns (allowing a more flexible approach).

Again these findings were confirmed in correspondence with another local authority who stated that adverts would have to be placed borough-wide for a month, highlighting the adoption of anti-idling powers. The high cost of doing this, combined with the low likelihood of actually issuing FPNs led to them deciding to tackle anti-idling without adopting these powers.

⁸ See for example Ricardo's report examining the emissions performance of hybrid buses for further information: http://www.lowcvp.org.uk/news,new-lowcvp-study-looks-at-air-quality-impacts-of-low-carbon-buses_2894.htm

⁹ <http://www.turnyouengineoff.org/laws.html>

¹⁰ <http://pubs.rsc.org/en/Content/ArticleLanding/2013/EM/C3EM00377A#!divAbstract>

¹¹ <http://www.sciencedirect.com/science/article/pii/S135223101201165X>

¹² <http://www.legco.gov.hk/yr07-08/english/panels/ea/papers/ea0116cb1-1601-1-e.pdf>

¹³ <http://www.theguardian.com/news/datablog/2010/oct/07/fixed-penalty-notices-england>

¹⁴ <http://www.renfrewshire.gov.uk/wps/wcm/connect/47c1faa5-3484-4a7e-a7ef-2f15d5a3efd9/cs-jb-scrutiny-vehicleidling.pdf?MOD=AJPERES&CACHEID=47c1faa5-3484-4a7e-a7ef-2f15d5a3efd9>

UK local authorities introducing 'anti-idling campaigns'

London – The Mayor's Air Quality Strategy (2010)¹⁵ announced it would "make London a 'no idling zone' for parked vehicles with a particular focus on buses, coaches, taxis, private hire vehicles, and delivery vehicles." In January 2012, Mayor Boris Johnson announced a campaign to tackle illegal idling, urging drivers to switch off engines when stationary for more than one minute.¹⁶ However in June 2012 it was reported that TfL's scheme encouraging reporting of engine idling in the capital had only received 40 emails in one year.¹⁷ While this was reported as indicating the scheme was a failure, much of the aim of most anti-idling campaigns is to raise driver's awareness of the need to switch their engine off. A low number of reports of offenders could therefore potentially be considered as an indication that the publicity had been effective.

Mayor Boris Johnson has since written to the Department for Transport highlighting that the £20 FPN for idling offences may not be a sufficient deterrent. However the Department responded that a punitive regulatory solution may not be the best approach, highlighting that serious idling offences can also be enforced by the police with a maximum fine on conviction of £1,000.¹⁸

Oxford City Council was one of the first councils to implement the powers to issue FPNs for stationary idling offences. Its *Air Quality Action Plan 2013-2020* highlights it is working with bus operators and freight companies to encourage compliance with anti-idling policies.¹⁹

Reading Borough Council has just been awarded £12,500 to introduce an anti-idling campaign (November 2013).²⁰

City of York Council has commissioned research into anti-idling campaigns (October 2013).²¹ The study is part of York's Low Emission Strategy.

Oldham Metropolitan Borough Council has been awarded just under £88,000 for a CCTV car to be used to carry out enforcement of illegal idling and parking.²²

Cheshire West and Chester Council is running a campaign to tackle bus idling problems in Chester. It has not adopted enforcement powers but has conducted surveys to establish the extent of the

¹⁵ https://www.london.gov.uk/sites/default/files/archives/Air_Quality_Strategy_v3.pdf

¹⁶ <http://www.businessgreen.com/bg/news/2136399/mayor-boris-launches-anti-idling-campaign-tackle-smog-threat>

¹⁷ <http://www.standard.co.uk/news/mayor/mayors-antiidling-road-scheme-branded-an-absolute-failure-7854400.html>

¹⁸

<http://www.londoncouncils.gov.uk/London%20Councils/ResponsefromPatrickMcLoughlintoMayorSept2013AirQua.pdf>.

¹⁹

<http://www.oxford.gov.uk/Library/Documents/Environmental%20Development/Air%20Quality%20Action%20Plan%202013.pdf>

²⁰ <https://www.gov.uk/government/news/new-projects-receive-1-million-to-improve-local-air-quality>

²¹ http://www.ttr-ltd.com/Latest-News/York-Idling-Study-Moving-Ahead_31.htm

²²

<https://www.whatdotheyknow.com/request/143809/response/364094/attach/10/Summary%20of%20bids%202012%2013.pdf>

problem and is working with bus and coach operators to raise awareness and reduce unnecessary idling.

The following local authorities have adopted powers to enforce idling offences (although most have never issued penalty notices):

- Sefton (2009)²³
- Portsmouth (2004)²⁴
- North Lincolnshire Council
- Croydon Council
- Torfaen Council
- Wandsworth Council
- Manchester City Council
- Aberdeen Council
- South Yorkshire Passenger Transport Executive
- Dudley Metropolitan Borough Council
- Merseytravel

Summary

Anti-idling campaigns have been used in a number of locations in the UK. Where successful they have been found to reduce average vehicle fuel use by 2-3%. A brief review has not found evidence of direct benefits for air quality in the UK, although with reduced fuel use some might be expected. Also studies in the US have found evidence of air quality benefits. A number of local authorities have adopted powers to enforce stationary idling offences but there are specific requirements for publicity which must be in place before FPNs can be issued. It appears that low numbers of FPNs have actually been issued in conjunction with idling.

We would suggest that a formal route for enforcing anti-idling is not adopted due to the potential costs, but a more flexible approach is taken including:

- Working directly with bus companies, potential Oxfordshire wide, building on Oxford City Councils work and linking to wider eco-driving advice.
- Working directly with freight companies, again Oxfordshire wide, potentially as part of a wide scheme such as EcoStars.
- Including anti-idling information with other vehicle information in behavioural change programmes.
- 'Switch-off' signage at key traffic or waiting locations.

In addition other options could be considered including:

Encouraging uptake of stop-start 'micro-hybrid' technology: Stop-start technology is becoming increasingly common on passenger cars and vans. The system automatically shuts off the engine when the vehicle comes to a rest and the driver selects neutral and brings the

²³ <http://modgov.sefton.gov.uk/moderngov/mgConvert2PDF.aspx?ID=7412>

²⁴ <http://www.portsmouth.gov.uk/media/epp20042503r5.pdf>

clutch pedal up. The engine automatically restarts as soon as the clutch or accelerator pedal is depressed. Specifying heavy-duty vehicles with stop/start systems can significantly reduce fuel consumption and CO2 emissions, depending on the vehicle's typical usage patterns. For a city busy savings can be 10 to 30%.²⁵ Local companies and bus operators can be encouraged to ensure their vehicles have this technology fitted. Also more than half of all new passenger cars in Europe are already fitted with stop-start.²⁶ Market analysts are predicting this will rise to over 80% for vehicles sold in Western Europe by 2022.²⁷

Promoting vehicle telematics systems: Telematics systems can enable operators of vehicle fleets to monitor how much time a vehicle spends stationary and idling. Drivers can be incentivised to minimise idling time, helping to save fuel costs for the operators and reduce air pollution. Fitting telematics systems to vehicle fleets can also be used to monitor many other aspects of driver behaviour, giving fleet operators the information they require to help make further fuel cost savings and safety improvements.

²⁵ Ricardo-AEA, Reduction and Testing of Greenhouse Gas Emissions from Heavy Duty Vehicles – Lot 1: Strategy

²⁶ <http://wardsauto.com/suppliers/stop-start-bound-50-take-rate-bosch-says>

²⁷ <http://www.navigantresearch.com/wp-assets/uploads/2013/12/SSV-13-Executive-Summary.pdf>

4 Emissions and air quality assessment

The modelling work will focus on emissions and air quality modelling at two level:

- District wide – to gain an estimate of the potential total emissions benefit
- AQMA based – building on the AQMA source apportionment work to look at impacts with regards the AQMAs.

The proposed modelling scenarios reflecting the LES measures are detailed in the accompanying modelling measures table.

5 Cost benefit analysis

To be done after the emissions assessment.

Annex 1 Procurement of Low Emission Vehicles and Transport Services

This note provides guidance on the procurement of low emission vehicles and transport services in order to meet the Council's duties with regards to improving local air quality and compliance with the EU Clean Vehicles Directive.

Local Air Quality Management and the Clean Vehicles Directive

Under the Environment Act 1995, and as set out in the Government's National Air Quality Strategies of 1997 and 2000, the Council has a duty to assess and manage local air quality. The Air Quality Strategy provides the policy framework for local air quality management (LAQM) and provides air quality standards and objectives for key air pollutants, which are designed to protect human health and the environment. The air quality standards and objectives are laid down in the Air Quality Regulations 2000.

Where an authority finds that pollution levels are in breach of the Regulations, they have a duty to examine the potential for human exposure to these pollutants. If there is a risk of the public being significantly exposed to a pollutant then the authority are required to designate an appropriate Air Quality Management Area or AQMA. Where local authorities have designated an AQMA they have a duty under section 84(2) of the Act to produce an Action Plan (AP). This plan must set out the measures the authority intends to introduce in pursuit of the air quality objectives.

The Council has declared three such areas and has put together a district wide action plan to reduce emissions and improve air quality. As part of this action plan the Council is seeking to use its procurement powers to reduce emissions from its own vehicles and those of contractors working on behalf of the Council.

In line with this approach the Council also has an obligation under the EU Clean Vehicles Directive (2009) to use its purchasing power to promote the uptake of clean and energy efficient vehicles. When the public sector either buys or leases a vehicle, they must take into account energy consumption, CO₂ emissions and pollutant emissions over the whole lifetime of vehicles. The Clean Vehicle Directive is enacted in England, Wales and Northern Ireland by the Cleaner Road Transport Vehicles Regulations 2011. The Regulations state that any public sector contracting authority, entity or operator when purchasing or leasing road transport vehicles must take into account the operational lifetime energy and environmental impacts, in respect of vehicles purchased or leased, including:

- Energy consumption
- Carbon Dioxide emissions
- Emissions of Oxides of Nitrogen, Hydrocarbons and Particulate Matter
- Noise can also be taken into account

To satisfy the requirements of the Regulations, one of 3 options must be chosen:

1. The technical specification for energy and environmental performance is set out in the documentation for the purchase and leasing of road transport vehicles or services.
2. Energy and environmental performance is included as part of the contract award criteria.

3. A monetised whole life cost assessment, including the damage cost of lifetime emissions, is carried out as part of the tender evaluation.

Therefore to carry out any vehicle or transport service procurement one of these three options MUST be included in the procurement process. The following section provides basic guidance on how to include these options in your procurement process.

Low emission vehicle specifications and award criteria

Table 1 below provides criteria that should be used for if providing specifications or using award criteria, and are based on the Government Buying Standards for Transport²⁸. These three sets of criteria should be used as follows:

- Minimum standards – these are the minimum standards that are expected to be used for procuring vehicles or services. They form the minimum specification standards or minimum award criteria.
- Best Practice – provide more stringent standards that can be used for specifications or enhanced award criteria.
- Other considerations – provide additional elements that could be used for specifications or within award criteria.

Table 1 Criteria to be used in specifications and award criteria.

Vehicle category	Minimum standard	Best Practice	Other considerations
Cars	CO ₂ - 130g/km or less Emissions – Euro 5	CO ₂ – 100g/km or less Emissions – Euro 6 or better (e.g zero emission)	Use of renewable fuels – e.g. bio fuels, renewable electricity Telematics to support fuel efficient driving.
Vans	CO ₂ - 175g/km or less Emissions – Euro 5	CO ₂ – 150g/km or less Emissions – Euro 6 or better (e.g zero emission)	Use of renewable fuels – e.g. bio fuels, renewable electricity Telematics to support fuel efficient driving.
Heavy duty vehicles	Emissions – Euro V	Emissions – Euro VI or better	Use of renewable fuels – e.g. bio fuels, renewable electricity Telematics to support fuel efficient driving.
Waste collections services	Emissions – Euro IV or equivalent retrofit	Emissions – Euro VI or better (e.g zero emission), or equivalent retrofit	Use of renewable fuels – e.g. bio fuels, renewable electricity Telematics to support fuel efficient driving. Monitoring and targets for CO ₂ , NO _x and PM emissions.

²⁸ <http://sd.defra.gov.uk/advice/public/buying/products/transport/standards/>

Bus services	Emissions – Euro IV or equivalent retrofit	Emissions – Euro VI or better (e.g zero emission), or equivalent retrofit	Use of renewable fuels – e.g. bio fuels, renewable electricity Telematics to support fuel efficient driving. Monitoring and targets for CO ₂ , NO _x and PM emissions.
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Whole life costing

The alternative to using set specification and award criteria is to carry out a whole life cost assessment as part of the tender or contract evaluation process. This should form the cost element of the tender evaluation process, should be calculated for the full vehicle or contract life and should include:

Vehicles

- Capital cost
- Running costs including fuel consumption, maintenance, taxes
- Re-sale value
- Damage costs

Services

- Full contract costs
- Damage costs

In order to calculate vehicle running costs the supplier will need to provide vehicle fuel consumption data and expected annual maintenance costs. This can then be combined with mileage data and fuel cost data to provide total lifetime running costs.

To calculate damage costs you will first need to calculate total emissions generated by the vehicle or service over its lifetime. This not necessarily straight forward but can potentially be done in one of two ways:

1. Using emissions performance data provided by the supplier (in terms of g/km), combined with mileage data;
2. Using emission calculation tools such as:
 - a. The DEFRA emission factor toolkit - <http://laqm.defra.gov.uk/review-and-assessment/tools/emissions.html>
 - b. The Low Emission Toolkit fleet tool - http://www.lowemissionstrategies.org/les_toolkit.html

These emission results can then be monetised using factors in Table 2 below to give the whole life cost of the vehicle or service, accounting for the damage costs associated with its emissions.

Table 2 Damage cost data

CO ₂	NO _x	PM
£0.03/kg	£0.95/kg	£48.52/kg

Source: CO₂ cost based on the shadow price of carbon estimated for 2010, NO_x and PM costs are based on IGCB damage cost data for 2010.

