RICARDO-AEA

Initial long list of measures for the Southampton LES

Technical working paper 1

Report for Southampton City Council

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Contents

1 Introduction

The effect that poor air quality has on human health is widely reported and the mechanisms that affect mortality and morbidity are becoming clearer. Elevated concentrations of NO_2 are known to cause constriction of the bronchioles, sensitivity to allergens and trigger asthma and there is strong correlation between fine particulate concentrations and cardiovascular and respiratory diseases, such as strokes and heart disease[1].

Southampton City Council (referred to as SCC or 'the Council') has declared 10 Air Quality Management Areas (AQMAs) for nitrogen dioxide (NO_2) based on measured concentrations exceeding the national objective, principally due to emissions from road transport. Southampton adopted its Air Quality Action Plan[2] (AQAP) in 2008 (updated in 2009) which describes a series of actions to improve air quality within the AQMAs and across the whole city. In February 2014 the European Commission started infraction proceedings against the UK for breaching NO_2 limit values in 16 of its 43 zones. Defra has notified the Council that the Southampton agglomeration is one of these zones and as such could be required by government to pay all or part of any infraction fine if they have not taken reasonable actions to achieve air quality objectives.

To address the poor air quality along the Western Approach (the site of one AQMA), the Council commissioned Ricardo-AEA alongside its partner for this work LES Ltd to undertake a feasibility study for the implementation of a Low Emission Zone (LEZ). An economic analysis of the LEZ options for the Western Approach indicated that in all scenarios monetary benefits, which included the health benefits, were outweighed by the predicted costs. In this project, the Council is seeking to build on these activities through the development of an overarching Low Emission Strategy (LES) for the City. A LES will seek to optimise municipal policies and strengthen partnership working to deliver cost-effective, road transport emission reductions across Southampton.

This technical work paper provides long list of potential measures to be included in a LES. It is deliverable D1 and the first output of the task on measure development. The long list is based on:

- The work carried out for the Western Approach Study that provided some initial ideas on measures for a LES
- A review of the Council's policies and programmes
- Initial consultation with city council and external stakeholders.

The following sections provide an overview of the engagement workshop, key themes and geographic aspects of the LES, baseline emissions results and the proposed long list of measures.

[1] http://www.comeap.org.uk/air/pollutants/97-health-effects-of-particles
[2] https://www.southampton.gov.uk/Images/Air%20QUality%20Action%20Plan%202009_tcm46-258022.pdf

2 Initial engagement workshop

Initial stakeholder engagement was carried out through two stakeholder workshops held on the 30th and 31st of March 2015. The first workshop was with internal city council stakeholders and the second was with external stakeholders. The workshops were run by Andrew Whittles and Guy Hitchcock from LES Ltd and Ricardo-AEA. They were supported by Simon Fry and Steve Guppy from the City Council.

The aim of the workshops was to present the idea of a Low Emission Strategy (LES) to stakeholders and to pull out information relating to potential LES measures that can be used in defining the long list of measures for consideration going forward. A note of the outcome of the workshops is included in Annex 1 and the participants in the workshop are listed in Tables 1 and 2 below.

Table 1 - Internal workshop participants, 30th March 2015

Name	Service Area
Bell, Simon	Transport Manager - Buses
Blythe, Matthew	Eastleigh
Boustred, Pete	Transport Policy Manager
Burke, John	Licencing (Taxi's etc.)
Chase, Debbie	Public Health Consultant
Churcher, Greg	Transport Manager - Stations, Walking, etc.
Croft, Megan	Schools Travel Plan + Cycling
Day, Kim	Performance & Policy Coordinator for People
Francis, Jo	HR
McCulloch, Lyndsey	Planning Ecologist
Mitch Sanders	Head of Regulatory Services
Rowland, Colin	Sustainability and Fleet Manager
Spiers, John	Head of Procurement
Steane, Iain	Strategic Travel Planner
Walker, Paul	Head of Transport
Wheeler, Paul	Fleet Manager

Table 2 - External workshop participants, 31th March 2015

Name	Company
Andrew Holt	CH2M Hill
Rod Figg	DPWorld
Aart Hille Ris Lambers	DPWorld
Steve Long	DPWorld
Chris Chester	First Group
Gary Weaver	First Group
N Morenoa	First Group
Katie Cadman	IKEA
Gary Whittle	Meachers Global Logistics
Antony Hoyle	Old Mutual
Rui Marcelino	UHS
Adam Tewkesbury	UoS
Tom Cherrett	UoS
Gavin Bailey	UoS
Steven Henderson	West Quay
Steve Barnett	Wheelers Travel

Engagement with the stakeholders will continue as the LES measures are developed, assessed and implemented. A working engagement plan is provided in Annex 2.

3 Key themes and geographical scope of the LES

3.1 Key themes

The purpose of the LES is to reduce emissions of both air quality related pollutants and carbon from road transport across the city. It is an area based strategy to support the Air Quality Action Plan in meeting compliance with air quality objectives, and to contribute to reducing carbon emissions in the city.

In terms of reducing emissions the primary focus of the LES is in promoting the use of low emission technologies, and the use of council policies and activities to achieve this. In this regard it complements wider activities on the development of sustainable transport in the city that are aimed at promoting walking, cycling and public transport, and reducing car use.

The LES will consider emission reduction strategies for the three main transport sectors in the city:

- Passenger cars – covering both personal and business use
- Freight vehicles – including the activities to and from the port
- Buses and taxies – to ensure that these are a low emission part of the transport sector.

In delivering measures in each of these three strategy areas there are four key council policy areas that can be considered:

- Transport planning – specifically the Local Transport Plan (LTP) and Local Sustainable Transport Funding (LSTF)
- Development planning – through the local plan and developer guidance
- Public sector procurement and licensing powers – using the buying power and licensing controls of the council
- Partnership working and information – using partnership working and information campaigns with other key organisations in the City such as the University, health organisations, large businesses and the port company.

In setting out the long list we have looked at each of the transport sectors and identified under which policy area a measure can be implemented.

3.2 Geographic scope

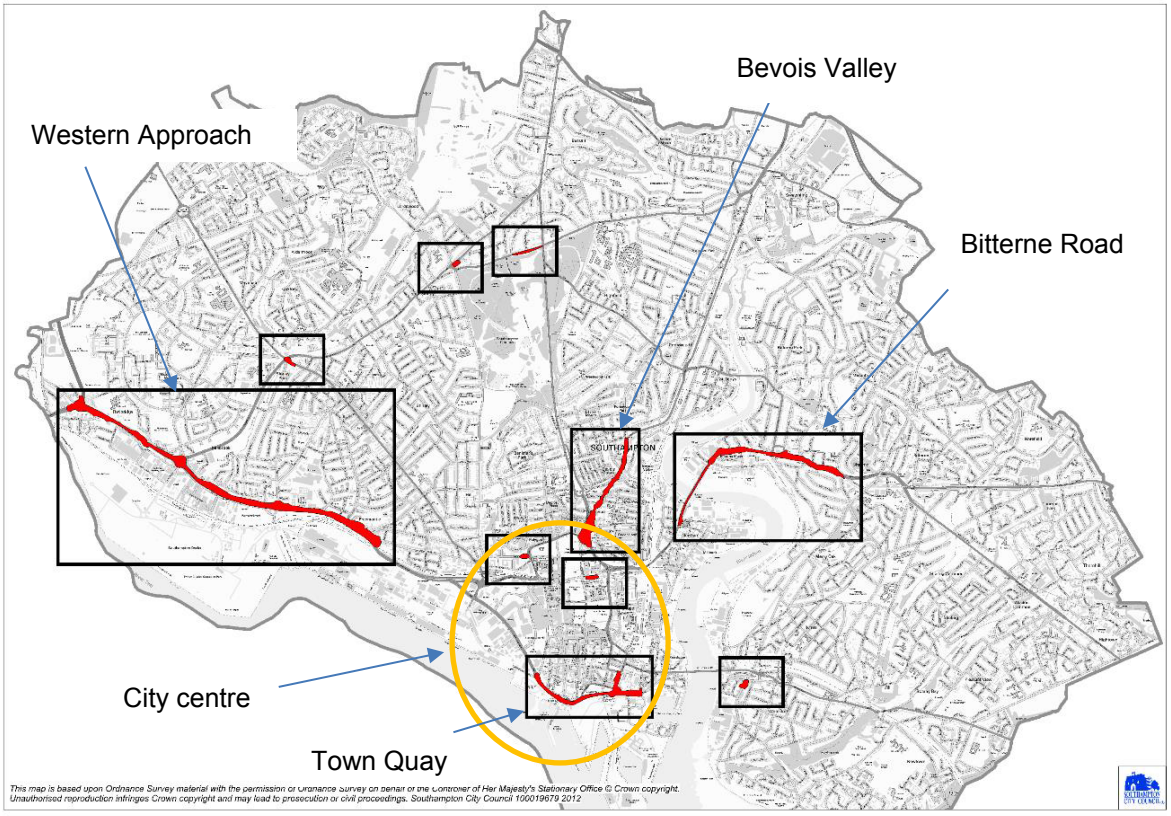
Although the LES is a city-wide strategy there is some merit in considering spatial aspects to the strategy as transport activity will vary around the city and the potential levers may have different impacts.

There are 10 AQMA's in the city as shown in Figure 1, with the main areas being:

- The Western Approach – covering the Millbrook and Redbridge Roads
- Bevois Valley – following the A335 Bevois Valley Road
- Town Quay – in the main city centre area
- Bitterne Road – covering the Eastern Approach to the City along the A3024.

Along with Town Quay there are two other AQMAs in the city centre. The city centre is also a focus of development through the City Centre Action plan and so could be considered as a whole.

Figure 1 – Southampton Air Quality Management Areas



Therefore in defining some geographic focus we propose looking at the whole city with a particular focus on the following areas:

- The city centre – with the same boundaries as the city centre action plan
- The Western approach – from the M271 to the city centre boundary with a particular focus on container port traffic
- The Bevois Valley – as a key congested route into the city centre and the site of a bus depot
- The Bitterne road – again up to the city centre boundary and as another key route into the city.

Particular consideration will be given to these areas in the development and assessment of the LES measures, with emissions results given for these areas individually as well as for the whole city. Also some consideration could be given to the A35 an outer route upon which 3 AQMAs lie and the A3025 from Portsmouth.

4 Baseline emissions results

4.1 Outline methodology

The focus of this aspect of the project is to provide an up to date initial estimate of emissions of key pollutants in Southampton from the road traffic sector. This will inform the selection of mitigation measures for the city by ensuring they are appropriately targeted at the right vehicle categories.

We have calculated emissions of NOx and PM_{10} for a 2015 baseline, using the best available traffic activity data available at the city scale, namely the traffic model maintained for the Council by WSP/Parsons Brinkerhoff (WSPPB).

The main input dataset to the emissions estimates is the outputs of the road traffic microsimulation model created in Aimsun and maintained by WSPPB in their capacity as traffic modellers to SCC. The use of the city traffic model ensures that our estimates are based on the main toolset currently being used for road traffic planning in the city. The model provides spatial coverage that would simply not be possible were the estimates to be based solely on discrete measurements of speed and flow. In our discussion with the WSPPB team we have learned that the model is available for the years 2015, 2019 and 2026 so it is sensible to use these years as baselines for our work.

Aimsun is an integrated transport modelling software, developed and marketed by Transport Simulation Systems based in Barcelona, Spain. Aimsun software is used by government agencies, municipalities, universities and consultants worldwide for traffic engineering, traffic simulation, transportation planning and emergency evacuation studies. It is used to improve road infrastructure, reduce emissions, cut congestion and design urban environments for vehicles and pedestrians.

The Aimsun output data was found to be very detailed both in terms of how the traffic fleet splits were defined and the spatial detail in the modelled road network. Some initial geoprocessing steps were necessary to better align the road link shapefiles with the underlying Mastermap data provided by SCC, but generally speaking the spatial accuracy of the traffic model was good.

The spatial coverage of the Aimsun model is shown in Figure 2 and covers the main city centre area but not the whole city. This coverage is shown alongside the AQMA boundaries currently available from the Defra website for Southampton and updated using data from the SCC website. As can be seen the Aimsun model does not cover every AQMA in Southampton, there is no data in the model for AQMAs 2, 3, 6 or 9.

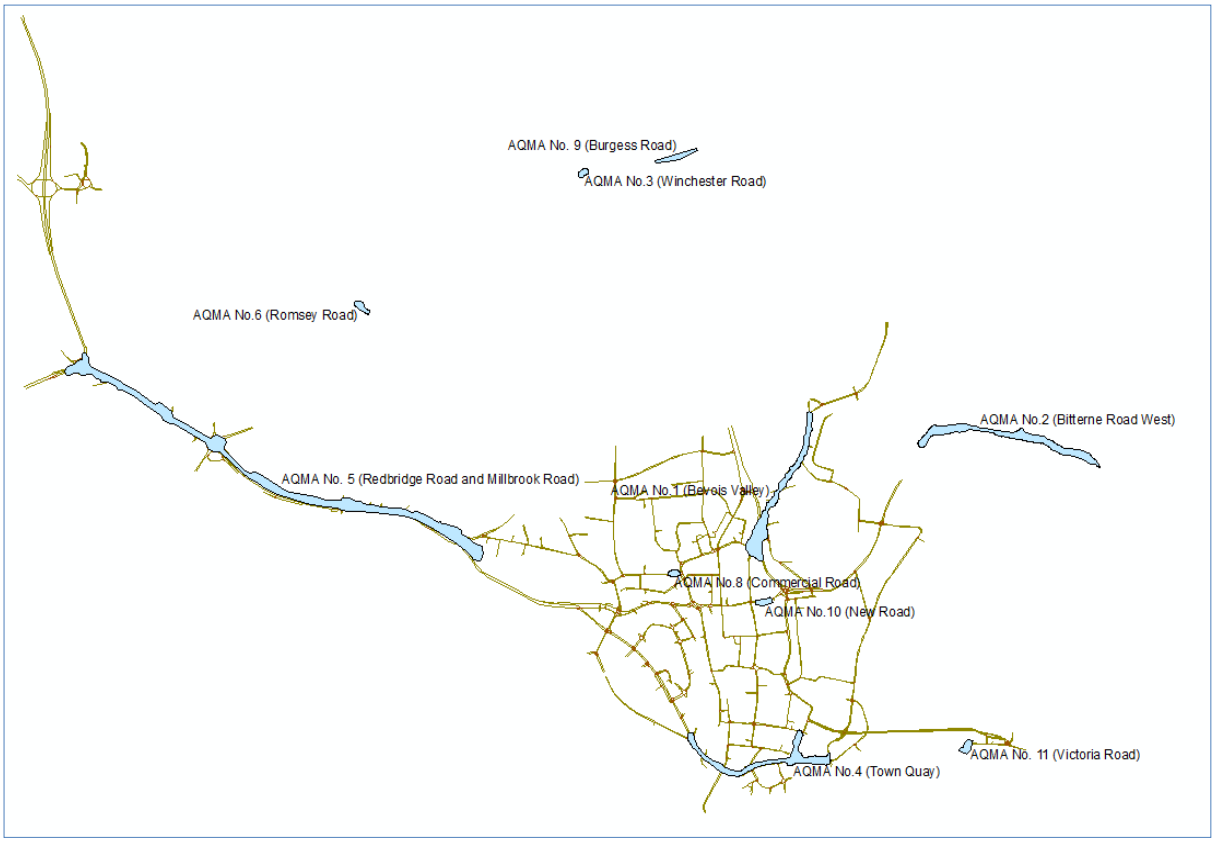
Initially we have used only the Aimsun traffic data and its area of coverage. However, we will extend the model cover the whole city area and the remainder of the AQMAs at a later stage. This will focus only on the main road network for which DfT traffic data or local count data exists. This will allow us to assess the LES at the city level more generally as well as in more detail within the Aimsun modelled area.

The AIMSUN model contains data for the AM (8 to 9am) and PM (5 to 6pm) peak traffic periods, as well as Saturday and a further scenario for Saturday with two cruise liners berthed at the port. Our analysis to this point has used only the AM and PM data. For both periods there is an overall flow and average speed on each link in the model as well as the same data but split by vehicle type. The split for the bus fleet is even further broken down into bus operators, namely First Bus, Bluestar and Unilink. Therefore all emissions calculated in the model are a function of vehicle type specific flows and speeds in the two time intervals included. It is unusual to have this level of sophistication in the fleet data for an emissions modelling exercise such as this one. For instance normally all vehicles would be

assigned the same average speed which probably underestimates emissions from the heavy fleet which tend to travel more slowly.

Also on this occasion bus routes are hard wired into the traffic model by virtue of the operators being split which means that we have not had to try to understand the often complex routing patterns of city buses. Therefore we can accurately estimate the impact of different bus operators in each of the AQMAs in the context of a similarly detailed treatment of other vehicle types.

Figure 2 - Spatial Coverage of the AIMSUN Traffic Model for Southampton



Average speed/ emission curves were prepared for each vehicle category present in the Aimsun data: cars, light goods vehicles, HGVs, First Bus buses, Bluestar buses, and Unilink buses. This was done using the Emissions Factors Toolkit (EfT) v.6.0.2 which is based on the COPERT IV emissions model set to a 2015 baseline year. Each vehicle type was modelled across a speed range of 10 to 120 kph and an emission rate in g/km at 5 km/h intervals was derived for NOx and PM_{10}.

Defaults were used to describe most of the vehicle characteristics within each class in the EfT. For example, we have not ascribed a bespoke ratio of diesel to petrol cars, and we have not categorised HGVs by their weight class, mainly because such data are not readily available. The exception is the bus fleet which have been ascribed specific Euro classes according to responses provided by local bus operators by personal communication to the project team[3]. No attempt has been made to characterise exactly the weight distributions within the bus fleet in the city so we have retained the EfT defaults.

[3] Further, information on Unilink's website suggested they renewed their entire fleet in 2013. As such we have assumed Euro V for these vehicles

Further data is being pursued in terms of characteristics of the HGV fleet from the port company and ANPR data from the West Quay carparks that could be used for the local car fleet.

Performing the emissions analysis in the GIS environment provides a platform for much more rapid analysis of city wide emissions than is normally possible. However, there is no GIS version of the EfT tool so we have derived speed vs emission curves of a form that can be readily ported into the GIS for use in the analysis.

We have assumed that all speed emission curves for all road transport pollutants can be approximated using a polynomial function which can be derived mathematically by running the EfT iteratively, and extracting a function for the relationship between average speed and emissions that results. The emission factors in the EfT are based on several forms of equations, so our goal in this instance was to summarise all of these mathematical variations in a single set of functions (one per vehicle type) with a common form that can be expressed in the GIS.

The LINEST function in Excel was used to derive polynomial curves which were fitted to the discrete points taken from the EfT model before these were implemented in the GIS for application with the Aimsun traffic data. As can be seen below in figure 3 for the illustrative examples selected (cars and HGVs), the correlations between the polynomial models and the source EfT models are excellent with an R^2 of greater than 99%.

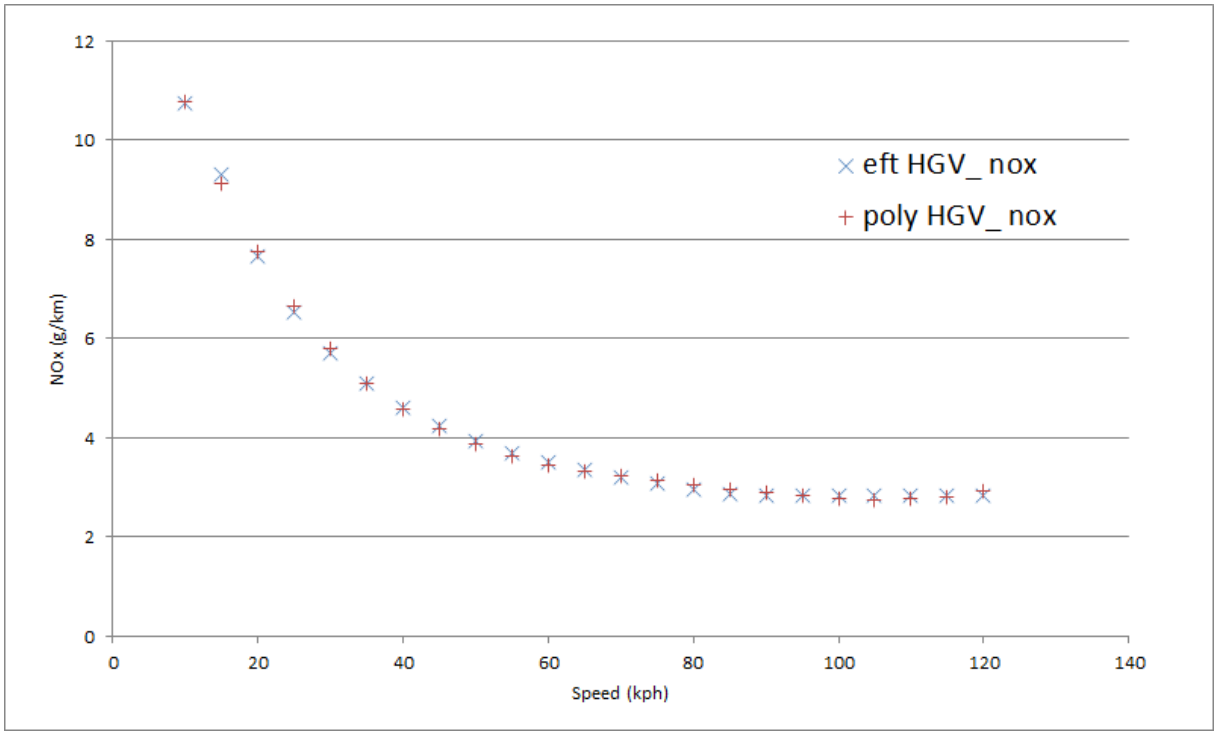
Figure 3 - Linear regression analysis of EfT speed emission functions Vs polynomial models of speed and emissions of NOx and PM_{10}

For each set of speed vs emission points the LINEST functions yields a quartic function of the form:

$$Emission\ (gkm) = ax^4 + bx^3 + cx^2 + dx + e$$

Where *x* is the vehicle speed in kph, a, b, c and d are coefficients of *x* and *e* is a constant. For example the quartic function describing the relationship between speed and emission of NOx in g/km for HGVs is plotted below in Figure 4 with the EfT derived curve plotted for the same speeds. The speed emission curves are virtually indistinguishable.

Figure 4 - Speed/ emission curve for NOx from HGV, EfT and polynomial models



When the emissions had been ascribed to the appropriate links based on their fleet activity and speed the source apportionment of NOx and PM_{10} for the various vehicle types was calculated.

Source apportionment is normally undertaken using one of two approaches. Dispersion modelling of individual vehicle sources at discrete receptor locations can be carried out and the source apportionment based on relative contributions to a measured or modelled concentration value at a given point- say a monitoring station. Alternatively an extremely simplistic road centreline approach can be used which assumes that the receptor location is only materially affected by the road source immediately beside it. The source apportionment is then based on the relative emission intensity of the vehicle types on the road in question, and a concentration value can be scaled to the relative emission strengths thereby completely overlooking the contributions from other nearby roads which may have a quite different fleet mix.

The fact that several AQMAs in Southampton are sited around dual carriageways precludes the use of a single road/single receptor source apportionment approach as this would be too simplistic for this case. For example, in the case of a dual carriageway, both roads will contribute to the concentrations, both roads could have different fleets, flows and speeds.

We have used a more sophisticated approach which derives a source apportionment based on a bespoke emissions inventory calculated from the WSPPB AIMSUN traffic model for the AQMAs in Southampton. The advantage of this approach is that all roads within the AQMA are considered and not just the road immediately adjacent to a given discrete point.

The AM and PM peak emissions inventory was calculated by first placing a 30m buffer around individual features in a shapefile of the AQMA boundaries in Southampton- this step was taken to minimise the sensitivity of the estimates to spatial inaccuracies in the AQMA shapefile and Aimsun road traffic model. A Spatial Join was performed in ArcMap which summed the previously derived emissions values of all road links within the buffered AQMA feature, and wrote the g/hr values for each vehicle category to new fields in the AQMA shapefile.

It was then straightforward to calculate the relative contributions of the different vehicle types to AM and PM emissions of NOx and PM_{10} within each AQMA. At present it has only been possible to undertake this analysis at the AQMAs which fall within the PB AIMSUN model.

4.2 City wide results

It is instructive to first consider some of the headline findings in terms of the traffic data used in the emissions calculations, as shown in Table 3 below. As can be seen the largest number of vkm in the Southampton traffic model are contributed by cars. Traffic patterns appear quite similar from the AM to PM model outputs though the number of HGV vkms drops markedly in the evening peak.

Table 3 - Network vkm travelled by vehicle class (for representative annual-average peak hour)

		Car	LGV	HGV	Buses			Total
					Bluestar	First	Unilink	
AM Peak	VKM	42880	4847	4806	219	301	41	53094
	% of total	80.8%	9.1%	9.1%	0.4%	0.6%	0.1%	100%
PM peak	VKM	41283	4848	2827	237	332	44	49571
	% of Total	83.3%	9.8%	5.7%	0.5%	0.7%	0.1%	100.0%

The data in the table 4 below shows the total mass of NOx and PM_{10} estimated for the AM and PM peaks. As can be seen the most significant sources of NOx in Southampton as a whole are HGVs and cars, which across both peaks contribute the same overall. Other sources are less important when taking the city as a whole. In line with the vkm data it can also be seen that the contribution from HGV's is much less in the PM peak than in the AM peak.

The results are similar for PM_{10} with cars and HGVs again being the most important sources. In this instance the bus contributions are estimated to be quite negligible.

Table 4 - NOx and PM_{10} by vehicle class (for representative annual-average peak hour)

		Car	LGV	HGV	Buses			Total
					Bluestar	First	Unilink	
AM Peak	NOx, kg	17	4	23	4	2	0.5	50.5
	% of total	33.7%	7.9%	45.5%	7.9%	4.0%	1.0%	100%
PM peak	NOx, kg	18	4	12	5	2	0.5	41.5
	% of Total	43.4%	9.6%	28.9%	12.0%	4.8%	1.2%	100%
AM Peak	PM_{10}, kg	1.5	0.3	0.9	0.08	0.11	0.01	2.9
	% of total	51.7%	10.3%	31.0%	2.7%	3.7%	0.5%	100%
PM peak	PM_{10} kg	1.5	0.3	0.5	0.039	0.054	0.007	2.4
	% of Total	62.5%	12.5%	20.8%	1.6%	2.3%	0.3%	100%

4.3 Network NOx emission density maps

The maps below in figures 5 and 6 show the emission density for NOx, in g/km/s, for the whole modelled road network. The maps show clearly that the highest emissions match with the main AQMA's with high emission densities along the Western approach into Town Quay, Bevois Valley and the Eastern approach from Bitterne. The results shown are similar in both peaks, but a bit lower in the PM peak.

4.4 Results for focus areas

Emissions inventories have been extracted for each of the main AQMAs from the data above in the GIS. This allows assessment of the emissions contribution to each of these areas and so can enable quite targeted measures to be developed given the relative contributions from different vehicle types will differ across the AQMAs. It should be noted that this assessment currently only considers road sources.

The analysis set out in the charts below should offer a more intuitive coupling of high concentrations in the AQMAs and local road sources that cannot be gleaned from the high level estimates. There are two general features that are fairly common to all the areas:

- HGV's dominate the NOx emissions, whereas cars (mainly diesel cars) dominate the PM_{10} emissions
- There is a clear difference between AM peak and PM peak HGV emissions, with the PM peak emissions being lower.

Figure 7 - AQMA 1- Bevois Valley (% of total vehicle emissions by vehicle type)

In terms of differences between the AQMA's the key points that arise are:

- Bevois Valley, Town Quay and Redbridge and Millbrook road have a similar split between the different vehicle classes
- Contributions from different bus operators and there routes is clear in these areas with bus emissions dominated by First in the Bevois Valley, but by Blue Star on the Redbridge and Millbrook roads
- Bus emissions are very significant in New Road and conversely are not significant in Commercial road.

Figure 8 - AQMA 4- Town Quay (% of total vehicle emissions by vehicle type)

Figure 9 - AQMA 5- Redbridge Road and Millbrook Road (% of total vehicle emissions by vehicle type)

Figure 10 - AQMA 8- Commercial Road (% of total vehicle emissions by vehicle type)

Figure 11 - AQMA 10- New Road (% of total vehicle emissions by vehicle type)

4.5 Implications for the LES

In terms of focusing on LES measures these results suggest the following:

- Car emissions are important in all areas, especially for PM_{10} which has the greatest health impact. Thus the LES needs to tackle car emissions across all areas of the city.
- HGV's are also a very significant source of emission and dominate NOx emissions which contribute to NO_2 levels.
- There is a significant difference between AM and PM peak emissions from HGV's so there may be scope for try to reduce the AM peak HGV traffic by scheduling activities.
- Buses are important in most areas, very significant in certain city centre roads such as New Road.
- Also the contribution from buses varies by operators depending on routes and so target route measures may be need.

At present taxis cannot be separated out from the data: we have so no specific information that can be used to target taxi measures.

5 Long List of Measures

In basic terms there are three main ways to reduce emissions from transport:

1. Reduce traffic flows – through mode shift and trip reduction
2. Improve traffic flow – by better management of the network to ease congestion and increase average speeds
3. Promote clean technologies – to directly reduce emissions from vehicles.

In terms of sustainable transport this is also the generally accepted priority hierarchy in terms of measures – i.e. reduce traffic first, improve flow and then make what's left low emission. Reducing and managing traffic flow is the focus of the LTP and LSTF, and this should be complemented by the LES which will focus on the promotion of clean technologies. This hierarchy and relationship with wider sustainable transport goals needs to be made clear in the LES.

Given this the long list of measures set out in Table 5 looks primarily at promoting low emission vehicles. The measures in this Table as noted before have been derived from previous work on the Western Approach, a review of existing policies and plans and the stakeholder workshops.

Table 5 - Long List of Measures

Measure	Policy area	Geographic area	Comments
Reducing emissions from passenger cars			
Low emission car and eco-driving messaging in the 'MyJourney' sustainable travel campaign	LTP/LSTF	City Wide	
Procurement of low emission vehicles in Council and partner fleets	Procurement Partnership	City Wide	Common/joint procurement
Low emission vehicle lease/salary sacrifice scheme	Procurement/HR Partnership	City Wide	Common approach to scheme with partners
Low emission parking areas	LTP	City Centre	Linked to EV charging infrastructure
Develop EV charging infrastructure	LTP Planning Partnership	City Centre first Key sites such as hospital	Work jointly with council resources and partners to invest in infrastructure
Common approach to EV recharging payment systems	Partnership	City Wide	
EV car clubs	LSTF Partnership	Key sites	Linked to EV charging infrastructure
ITS/traffic management to help manage traffic at key AQ hotspots.	LTP	AQMAs	Could be linked to parking and routing
Low Emission Lanes or Zones	LTP	AQMAs	This has been looked at for the Western approach and not effective, but may work elsewhere

Managing emissions from freight			
Low emission vehicles used for final delivery from consolidation centre	LTP Partnership	City centre	
Low Emission vehicles encouraged in DSP work	LSTF	City Wide	
Port booking scheme used to encourage/incentivise low emission trucks	Partnership	Western Approach	
Port booking system linked to ITS system to ease flow of trucks to port at key times especially AM peak	LTP Partnership	Western Approach	
HGV gas refuelling scheme – linked to port and council depot	Partnership	Western Approach	
Council gas RCV fleet	Procurement	City Wide	Linked to gas refuelling scheme above
24 hr delivery for low emission trucks to encourage fewer peak time HGVs	Planning	City Centre	
HGV standards for deliveries in city centre	Planning Procurement standards	City Centre	Procurement standards with partners – common approach.
Clean and efficient buses and taxis			
Retrofit for buses • SCRT for older buses • Thermal management for Euro 5	LTP Partnership	Key bus corridors	
Gas bus scheme	Partnership LTP/ Procurement	Key bus corridors	Link to specific services e.g.: • Unilink • P&R (what is status of these?)
ITS to improve bus journey times/bus priority	LTP	Key bus routes/ AQMAs	
Greater enforcement of, or tighter emission standards in taxi licence	Licencing	City wide	Need consistency with neighbouring authorities
Priority low emission taxi ranks	LTP		
Taxi EV charging points	LTP Partnership	City Wide	Linked to taxi rest areas
Low emission taxis promoted through procurement/contracts	Procurement Partnership	City Wide	Common approach with partners

6 Discussion

This report has set out the key themes, geographical considerations for the LES and baseline emission results along with the initial long list of potential measures for the LES. The measures have been related to the policy mechanism required to implement them and geographical considerations.

Within the project there is also a specific focus on planning and procurement policies and so it will be necessary to ensure that proposed measures that are identified for implementation through planning and procurement are pulled through into the planning and procurement guidance that is developed in the project.

Going forward we also need to consider how these measures can be assessed. Initially we will carry out an emission assessment and to do this we will need to consider how each of the measures will effect:

- Traffic levels on roads across the city
- Traffic speeds on roads across the city
- Fleet composition – such as Euro standard split.

These 'activity' impacts can then be applied to the existing baseline traffic data we are collating in order the estimate the emissions impact of each of the measures and combination of measures. These activity impacts will be derived as we do further development of the measures and will draw on our experience from other studies, local expertise from SCC transport planning colleagues and from literature.

Alongside the development of the measures further stakeholder engagement will take place. A stakeholder engagement plan is being developed to support this activity and the engagement itself will also feed into the development of the measures.

As part of the engagement work both during measure development and implementation two specific engagement groups were considered:

- A project steering board – pulling together key stakeholders in the city council who will be responsible for implementing measures as they go forward.
- A Southampton Low Emission Partnership – pulling together wider interests in the city to support a partnership approach to implementing the LES.

In terms of the city level partnership it was suggested that this could be built on existing partnership arrangements. Two specific partnerships were mentioned:

- The Southampton Low Carbon group – which focuses on carbon emission and climate change. This could be widened to cover air quality and become the Southampton Low Emission Group. However, this group currently seems to be more focused on buildings rather than transport. Also the current status of this group is not clear, e.g. there seems to be a dormant website.
- The city's travel planning group – this has a more transport focus, but has no consideration yet of emissions or air quality.

Annex 1 - Stakeholder engagement workshop report

Introduction

This note sets out the key points from the two stakeholder workshops held on the 30th and 31st of March. The first workshop was with internal city council stakeholders and the second was with external stakeholders. The participants for each workshop are shown in Appendix 1.

The workshops were run by Andrew Whittles (AW) and Guy Hitchcock (GH) from LES Ltd and Ricardo-AEA. They were supported by Simon Fry and Steve Guppy from the City Council.

The focus of the note is to pull out information relating to potential LES measures that can be used in defining the long list of measures for consideration going forward.

Workshop introduction

Steve Guppy provided a brief overview of the background to the project for the workshop participants. The key points were:

- Southampton has been identified by the Government as one of the areas in the country with air quality problems of significant national importance.
- Overall the city has 11 areas that exceed air quality limits and has designated air quality management areas (AQMA) and an associated air quality action plan (AQAP).
- Public Health England (PHE) estimate that over 1 in 20 deaths in Southampton are related to air pollution.
- As a result of the significance of air pollution in the city an Air Quality Scrutiny panel was established and with several recommendations including:
    - Support for developing a Low Emission Strategy;
    - And the need to embed air quality considerations into to all the Councils policies and strategies.

Air Quality and Health

Andrew Whittles gave a brief background to air quality and health issues. He noted that although the project would not formally do a health impact assessment for the LES it would provide the emissions data to allow this to happen and this could be used by internal public health colleagues to carry out this assessment. Debbie Chase from the council public health was happy to explore doing this work alongside the project team. Andrew Whittles noted that Duncan Cooper from Public Health England had provided a spreadsheet for the Bradford/Leeds LES HIA that could help with this assessment.

Measures to reduce car emissions

The key information and ideas that came out of this session were:

City Council activity in this area

- Key focus is on behaviour change, such as the 'MyJourney' campaign and the link to active travel and public health.
- However are also considering better driving behaviours (ecodriving) and low emission vehicles for inclusion in this
- LST funding supports this work and could be used to help LES work

- However they need to be careful about mixed message - sustainable travel vs low e-cars
- The ITS strategy review
  - This review could consider strategies to help improve air quality specifically
  - Looking at including AQ data in system modelling data initially, then live feed data
  - Andrew Holt from CHSM Hill who is leading the review work was present and was keen to further liaise with the LES work.
- Parking strategy is also being reviewed
  - There are some changes in approach and consideration could be given to incentives for low emission vehicles
  - There is potential for linking incentives or consistency with other parking providers such as West Key
  - Park and ride developments are being considered as no formal system is currently in place. Several external stakeholders were very keen on the development of this.
- Further development of the cycle network is taking place to promote mode shift
- LTP review is considering a zonal basis rather that corridor approach which may complement AQMA's better. Need to consider this for LES structure
- In terms of their own staff
  - A cycle salary sacrifice scheme is already in place
  - A low E car scheme could also be considered
  - There is a programme on working styles to help reduce need for staff accommodation and to reduce travel needs.
- It was also noted that infrastructure work will cause short term problems – i.e. congestion

External activities

- DPworld – has a private lease scheme for low emission cars, but could do more e.g. promote EV's including charging infrastructure. However scheme is small with only 25-30 vehicles taken up from some 500 staff.
- University – has focused mainly on travel plan activity with regards to mode shift, but are beginning to consider supporting low emission vehicles. In addition they have some EVs in their van fleet.
- Hospital – has some EV charging in its car parks. Staff commuting in from outside the city has increased in recent years and is now some 60% of the total, and they work varying hours, all of which can make use of PT difficult.
- Ikea – has EV charge points for its customers and currently doing some 70-80 charges per month. These are rapid charge points supplied by EcoTricity.
- West Quay – does not have charge facilities yet but is considering this. Dwell time in retail parks is about 2-3 hours so plenty of time to charge a vehicle. Key issue is providing dedicated space, especially when car parks are heavily used.
- Old mutual – have some 200 spaces, with 6 priority spaces for car shares. No charge points yet but being considered, but concerned providing EV charging would be seen as benefit in kind.

Other thoughts and ideas

- West Quay has ANPR data for its carparks – this could be used to check typical fleet composition. Ricardo-AEA to follow up this data.
- Interest in a common payment system for EV charge points across the city – LES study to explore this.
- City car club existing in the city and should be engaged. The hospital is currently exploring with them the potential to use car club vehicles for health workers rather than their own vehicles.

- Role of green infrastructure - trees/parks – in AQ mitigation and promoting soft modes

Freight Measures

- An urban consolidation centre is already in place:
  - Public sector working well
  - Isle of White working well (don't have to do crossing)
  - Does added value services – such as warehousing
  - Still needs to expand to wider client base, especially in retail centre
  - Could consider Low E vehicles for last mile delivery but not at present
  - Currently part of an EC project sharing knowledge between such schemes
- A project DSP is already running funded through the LSTF
  - University is doing main work on DSPs for organisations
  - First main one with Hospital/NHS
  - Loose link with consolidation centre
  - Encourage low emission vehicles as part of work and developed further
  - Procurement and supply chain considerations key to schemes
- Port booking system for HGV is in place
  - Could link to use Euro standard, but this may be anti-competitive and affect business
  - Generally fleet is very modern
  - Have data on vehicle regs - could discuss using this
  - Peaks 4am-7am, 1pm-5pm – pay for these
  - Peak not same as commuter peak
  - Peaks times driven by supply chain and ultimate customers
  - Idea link booking system to ITS to give green ways?
- Share gas infrastructure
  - GasRec work at port possible, not yet enough demand
  - Could the city RCV fleet help tip balance?
  - Tenon's is working form here – so existing demand
  - Local hauliers go anyway so hard to be confident of supply
- Delivery windows at stores - look at 24hr delivery to reduce HGV's at peaks
- Vehicle standards through contracts is something already being done – perhaps a consistent approach between organisations
- Need to ensure HGV/car traffic considering in planning of new stores

Buses and taxis

Issues for the bus operator

- Revenue is down
  - BSOG changes
  - Fewer tendered services
  - So investment hard
- Compliance with DDA regs means newer vehicles coming in
- Slow speed of traffic – 2nd slowest traffic in South
  - More bus priority? Link with bus priority enforcement

- Link to ITS review
- Speed and journey time data to explore

Bus initiatives

- Grant funded projects
  - Flywheel retrofit
  - DPF/SCR retrofit
- Wright bus light weight 'street light' bus, which First have several and these are about 30% lower fuel use
- Thermal management system from HJS have been used on this to ensure Euro 5 work effectively, cost £11k
- First have 'green road' telematics and driver management system across the fleet, including 4 min idle shut down
- RTPI being put in - for passengers but also for fleet management
- Gas bus - some interest (Reading experience)
- Electric buses not seen as viable yet
- University contract the Unilink bus service and include emission standards in procurement. Hybrid and gas options will be considered for next procurement phase
- Cross ticketing developing

Taxi issues

- Taxis - about 850 vehicles in city
- SCC just increased age limit on licence so currently going in wrong direction
- Any changes need to be made with neighbouring authorities
- Some evidence of taxi drivers disconnecting DPFs!
- Can also use procurement to improve standards e.g. taxi use for children's service, etc., or taxi contracts with other businesses.

Next steps

The key next steps are:

- Develop long list of measures by end April
- Develop engagement plan alongside this
  - Simon Fry will confirm key contacts for stakeholders and provide Ricardo-AEA and LES limited contact details to stakeholders
- Consider developing a Southampton Low Emission Partnership. This could build on existing partnerships such as the climate and energy partnership. Steve Guppy will explore these for possible use.

Actions

- Ricardo-AEA/LES Ltd to liaise with Debbie Chase from the public health team in relation to providing data for a health impact assessment.
- Ricardo-AEA/LES Ltd team to follow up with Andrew Halt on ITS strategy review work and data.
- Ricardo-AEA to follow up with West Quay for its ANPR data.
- LES Ltd to engage with City Car Club

- Ricardo-AEA Engage with DP world on accessing data from port booking system to assess HGV fleet profile.
- Ricardo-AEA/LES Ltd to develop long list of measures.
- LES Ltd to develop engagement plan
- Simon Fry will confirm key contacts for stakeholders and provide Ricardo-AEA and LES limited contact details to stakeholders
- Steve Guppy to explore existing partnerships as basis for Low Emission Partnership.

Annex 2 - Stakeholder engagement plan

To follow

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