Public Document Pack

# Scrutiny Inquiry Panel - Air Quality

Thursday, 18th December, 2014
at 4.30 pm

**PLEASE NOTE TIME OF MEETING**

Committee Room 1 - Civic Centre

This meeting is open to the public

**Members**

Councillor Hammond (Chair)
Councillor Coombs
Councillor Galton
Councillor Lloyd
Councillor McEwing (Vice-Chair)
Councillor O'Neill
Councillor Parnell

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# PUBLIC INFORMATION

**Role of this Scrutiny Panel**

The Overview and Scrutiny Management Committee have instructed Scrutiny Panel to undertake an inquiry into Air Quality in Southampton

**Southampton City Council's Priorities**

- Jobs for local people
- Prevention and early intervention
- Protecting vulnerable people
- Affordable housing
- Services for all
- City pride
- A sustainable Council

**Public Representations**

At the discretion of the Chair, members of the public may address the meeting about any report on the agenda for the meeting in which they have a relevant interest.

**Smoking policy** – the Council operates a no-smoking policy in all civic buildings.

**Mobile Telephones:-** Please switch your mobile telephones to silent whilst in the meeting

**Use of Social Media:-** If, in the Chair's opinion, a person filming or recording a meeting or taking photographs is interrupting proceedings or causing a disturbance, under the Council's Standing Orders the person can be ordered to stop their activity, or to leave the meeting

**Fire Procedure** – in the event of a fire or other emergency a continuous alarm will sound and you will be advised by Council officers what action to take.

**Access** – access is available for the disabled. Please contact the Democratic Support Officer who will help to make any necessary arrangements.

**Dates of Meetings: Municipal Year**

| 2014 | 2015 |
|---|---|
| 31 July | 22 January |
| 18 September | |
| 23 October | |
| 20 November | |
| 18 December | |

## CONDUCT OF MEETING

**TERMS OF REFERENCE FOR THE INQUIRY**

**Purpose:**
To develop understanding of the issue of air quality in Southampton and to identify what additional steps can be taken, if necessary, to improve it.

**Objectives:**

a. To increase understanding of air quality issues within Southampton
b. To examine the causes and impacts of air pollution
c. To understand the actions being taken to reduce air pollution in Southampton
d. Learning from best practice, to identify ways of improving air quality in the City now and for future generations

**BUSINESS TO BE DISCUSSED**
Only those items listed on the attached agenda may be considered at this meeting.

**RULES OF PROCEDURE**
The meeting is governed by the Council Procedure Rules and the Overview and Scrutiny Procedure Rules as set out in Part 4 of the Constitution.

**QUORUM**
The minimum number of appointed Members required to be in attendance to hold the meeting is 3.

## DISCLOSURE OF INTERESTS

Members are required to disclose, in accordance with the Members' Code of Conduct, ***both*** the existence ***and*** nature of any "Disclosable Pecuniary Interest" or "Other Interest" they may have in relation to matters for consideration on this Agenda.

## DISCLOSABLE PECUNIARY INTERESTS

A Member must regard himself or herself as having a Disclosable Pecuniary Interest in any matter that they or their spouse, partner, a person they are living with as husband or wife, or a person with whom they are living as if they were a civil partner in relation to:

(i) Any employment, office, trade, profession or vocation carried on for profit or gain.

(ii) Sponsorship:

Any payment or provision of any other financial benefit (other than from Southampton City Council) made or provided within the relevant period in respect of any expense incurred by you in carrying out duties as a member, or towards your election expenses. This includes any payment or financial benefit from a trade union within the meaning of the Trade Union and Labour Relations (Consolidation) Act 1992.

(iii) Any contract which is made between you / your spouse etc (or a body in which the you / your spouse etc has a beneficial interest) and Southampton City Council under which goods or services are to be provided or works are to be executed, and which has not been fully discharged.

(iv) Any beneficial interest in land which is within the area of Southampton.

(v) Any license (held alone or jointly with others) to occupy land in the area of Southampton for a month or longer.

(vi) Any tenancy where (to your knowledge) the landlord is Southampton City Council and the tenant is a body in which you / your spouse etc has a beneficial interests.

(vii) Any beneficial interest in securities of a body where that body (to your knowledge) has a place of business or land in the area of Southampton, and either:

a) the total nominal value of the securities exceeds £25,000 or one hundredth of the total issued share capital of that body, or

b) if the share capital of that body is of more than one class, the total nominal value of the shares of any one class in which you / your spouse etc has a beneficial interest that exceeds one hundredth of the total issued share capital of that class.

## Other Interests

A Member must regard himself or herself as having an 'Other Interest' in any membership of, or occupation of a position of general control or management in:

Any body to which they have been appointed or nominated by Southampton City Council

Any public authority or body exercising functions of a public nature

Any body directed to charitable purposes

Any body whose principal purpose includes the influence of public opinion or policy

## Principles of Decision Making

All decisions of the Council will be made in accordance with the following principles:-

- proportionality (i.e. the action must be proportionate to the desired outcome);
- due consultation and the taking of professional advice from officers;
- respect for human rights;
- a presumption in favour of openness, accountability and transparency;
- setting out what options have been considered;
- setting out reasons for the decision; and
- clarity of aims and desired outcomes.

In exercising discretion, the decision maker must:

- understand the law that regulates the decision making power and gives effect to it. The decision-maker must direct itself properly in law;
- take into account all relevant matters (those matters which the law requires the authority as a matter of legal obligation to take into account);
- leave out of account irrelevant considerations;
- act for a proper purpose, exercising its powers for the public good;
- not reach a decision which no authority acting reasonably could reach, (also known as the "rationality" or "taking leave of your senses" principle);
- comply with the rule that local government finance is to be conducted on an annual basis. Save to the extent authorised by Parliament, 'live now, pay later' and forward funding are unlawful; and
- act with procedural propriety in accordance with the rules of fairness.

# AGENDA

Agendas and papers are now available via the City Council's website

**1 APOLOGIES AND CHANGES IN PANEL MEMBERSHIP (IF ANY)**

To note any changes in membership of the Panel made in accordance with Council Procedure Rule 4.3.

**2 DECLARATION OF PARTY POLITICAL WHIP**

Members are invited to declare the application of any party political whip on any matter on the agenda and being scrutinised at this meeting.

**3 DECLARATIONS OF SCRUTINY INTEREST**

Members are invited to declare any prior participation in any decision taken by a Committee, Sub-Committee, or Panel of the Council on the agenda and being scrutinised at this meeting.

**4 STATEMENT FROM THE CHAIR**

**5 MINUTES OF THE PREVIOUS MEETING (INCLUDING MATTERS ARISING)** (Pages 1 - 18)

To approve and sign as a correct record the Minutes of the meetings held on 20th November, 2014 and to deal with any matters arising, attached.

**6 REVIEW OF EVIDENCE** (Pages 19 - 24)

Report of the Assistant Chief Executive setting out the areas that have already been considered by the Panel in order to assist in formulating findings and recommendations, attached.

**7 WOODLAND TRUST - URBAN AIR QUALITY REPORT** (Pages 25 - 38)

Report of the Assistant Chief Executive giving details of a report on urban air quality produced by the Woodland Trust, attached.

Wednesday, 10 December 2014 HEAD OF LEGAL AND DEMOCRATIC SERVICES

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SCRUTINY INQUIRY PANEL - AIR QUALITY

MINUTES OF THE MEETING HELD ON 20 NOVEMBER 2014

Present: Councillors Hammond (Chair), Coombs, Galton, Lloyd, McEwing (Vice-Chair), O'Neill and Parnell

14. **APOLOGIES AND CHANGES IN PANEL MEMBERSHIP (IF ANY)**

It was noted the Councillor Lloyd had now permanently replaced Councillor Thorpe as a member of the Panel. This change had been report at the Council Meeting on 19th November, 2014.

15. **MINUTES OF THE PREVIOUS MEETING (INCLUDING MATTERS ARISING)**

RESOLVED that the minutes of the meeting held on 23rd October, 2014 be approved and signed as a correct record.

16. **AIR QUALITY - SOUTHAMPTON CITY COUNCIL**

The Panel considered the report of the Assistant Chief Executive relating to how effectively the Council was working to address air quality issues in the City.

Neil Tuck gave a power point presentation giving details of the Local Sustainable Transport Fund, appended to the minutes.

The following responses were given to questions raised:-

- The funding ends March 2016, and following a period to assess, it was hoped that it would be possible to see if the objectives had been achieved by 2017.
- It was explained that the travel attitude survey targeted groups through “Mosaic”, which through technology ensured that there was an equal proportion of each group questioned.
- It was commented that there needed to be more done to target the tourists that were visiting the City. The “totems” were used at the coach and train station together with the airport. At certain times of year there were also poster campaigns.
- Concerns were raised relating to the “My Journey” app being very sensitive to the spelling. This would cause a greater problem for people visiting the City that may not be familiar with place names or spellings. They were currently looking at refining the search engine in order to try to improve this.
- Information relating to the take-up of the free months travel, for target groups of young people entering employment, was not currently available as the resource restraints were causing difficulties accessing the data.
- The was a mechanism in place to ensure dialogue took place with the University to ensure that they have appropriate travel plan in place and that they were targeting investment in this area. A concern was raised relating the University not enforcing their own rule of students not being allowed to have vehicles.
- It was agreed that for some people moving away from travelling by car was not an option, due to the type of work they had. However for such groups there was always the option of looking at whether alternative travel could be used during their leisure time.
- There was a team dedicated to school journeys and this had resulted in a large increase in the number of children walking to school.

- There was a great amount of support for the Sky Ride event, however concern was raised about the safety of the roads for cyclists during normal usage. It was agreed that work was still needed to make the City's roads safer. Additional local Sky Ride events also took place across the City.
- The My Journey "Roadshow" attends many major City events to promote cycling. Babs the Big Red Bird would be at such events.
- Concerns relating to some advertising slogans being inappropriate had been noted. It was agreed that there was a need for something eye catching but it was important that it did not cause offence.

Steve Guppy gave a power point presentation on Ultra Low Emissions, appended to the minutes. Steve explained the government plan to reach ultra-low emission vehicle majority by 2050 and have announced £35M to be made available to 2-4 cities that commit and agree to a step change in ULEV adoption. The announcement was originally due in the Autumn, therefore it should be imminent and local air quality will be important when assessing bids.

The following responses were given to questions raised:-

- Currently the priority to improve air quality was to reduce the total number of vehicles, rather than looking at increasing the number of electric vehicles.
- Recharging points were sometimes included in new large developments, however these were not always publically accessible.
- The Council currently have one electric van in its fleet. It was likely to be used as a pool vehicle. It would not be possible to have it as one of the vehicles that was taken to home as there could be issues relating to the charging. Planning of the journey was crucial for the vehicle to ensure charging was not a problem.
- Opportunities to included planning conditions to include public charging points within new developments would be limited, as it would difficult to justify that this was reasonable with so few electric vehicles currently on the roads.
- It was estimated that the cost installing a home electric charging point was £600, however this could be between £6-9,000 if were for a public point that provided rapid charging.
- Issues relating to home charging for staff included people not having off-road parking and cost of electricity.
- There still was no agreement amongst manufactures on a standard charging plug, although it was thought that this was a matter that was in the process of being resolved.
- Telematics technology was not being utilised in Council vehicles as discussions had not yet taken place with staff. This was something that would be progressed as not only could it have a positive impact on air quality it could also generate a saving on fuel consumption.
- Having a fleet of electric vehicles based at the Council Depot to resolve charging issues was currently not an option as the large number the vehicles taken home out of hours was due to space issues.
- Eco Driver training was available to Council staff through My Journey project but was not compulsory – this was promoted via SCC managers.
- Concerns were raised that businesses in London raised very negative issues when the Low Emission Zone (LEZ) was introduced and whether the financial impact had been quantified. It was felt that the many drive behind the scheme was the commitment from the Government to improve air quality.

- Funding would come from the Government rather than Council budgets, however there was a risk of investing in emerging technologies that could change to alternatives in the future.
- Ways to improve air quality was now starting to be looked at internally when planning applications were being considered. Including what measures can be put in place to reduce impact on air quality, such as green infrastructure; particular species of tree; and types of roof tiles. Any conditions would need to be reasonable and cost would have to be considered. It would not be possible to impose conditions if they were not viable.
- The planning function could improve air quality in two ways; by reducing emissions and aby mitigating emissions.
- It was suggested that even if it was not possible to impose conditions maybe it could be suggested to developers of major development proposal that they include the appropriate ducting so that future charging points could be installed with relative ease.
- It was reported that there was flexibility on what the Community Infrastructure Levy (CIL) was spent on as it was not site specific in the same way that a S106 agreement.
- Imminent review of the Local Plan provided an opportunity to update and strengthen policies linked to address air quality.
- With regards to the Thornhill District Heating scheme it was accepted that there was a balance between the benefits of the scheme to the residents saving money on their current energy costs and the types of fuel used and the effects on air quality.
- Funding for the Air Alert scheme was available until 2016. So there would be a need to look at future funding of the scheme or it would stop. This could possibly be a question for Public Health as there was a need to look at the value of welling being.
- It was reported that an email had been received from DEFRA confirming that a new monitoring station would be installed in Southampton that was compliant with EU regulation. The location was most probably going to be the Old Redbridge Primary School site.
- Papers included with the agenda indicated that the cost of the introduction and enforcement of a LEZ on the Western Approach outweighed the benefits that it would achieve. Concerns were raised that this did not however take into account the cost on the health system. It was agreed that data on this was needed, it was not possible to consider the matter just on economics.

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# Local Sustainable Transport Fund

Changing behaviour in Southampton

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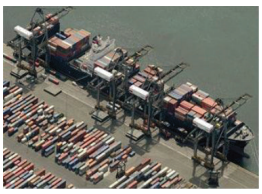
## Southampton – local context

- Economic hub of south coast
- Cruise capital of EU
- Leading commercial dockyard
- City centre focussed + large employer clusters
- Young population
- High % of self containment



**Three pillars of economic development = Bus + W&C + ITS**

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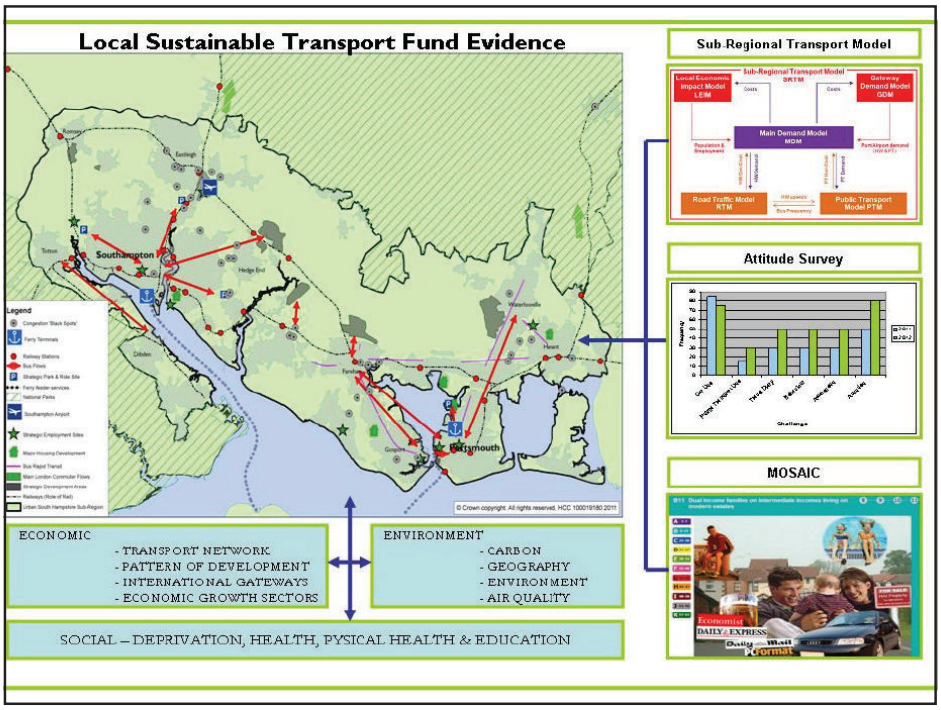


# Travel behaviour change

A Travel Attitudes Survey of 1500 Southampton residents in April 2011 asked…

> *"Smarter Travel Southampton is a proposed initiative, consisting of information, promotions and events to help local residents cycle, walk or use public transport more often to benefit their health and the environment and reduce local congestion.*

Do you believe this in the kind of service that Southampton City Council should invest in?"

**Yes = 86%**

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## Understanding Target groups through Mosaic

Segment 15: Well qualified, young professionals living in purpose-built prestigious locations

**Key features**

- Young professionals
- Good careers
- Purpose-built flats
- Use public transport
- Low interaction with the council
- Council tax - direct debit
- Very active lifestyles
- Light smokers
- Alcohol attributable admissions

Family composition | Wealth | Age group

**Might look like....**







**Communication channels**

Most likely to respond to:

**Internet**
Southampton Segment 15 are very confident using the Internet as a method of communication. This technology is likely to play an important role in both their work and home lives; they are likely to use it on a daily basis. Web based communication either through relevant websites or via email, would therefore be effective ways of reaching these residents.

**SMS text**
Mobile phones tend to be integral to the lives of Segment 15, keeping them continually contactable for work and their network of friends. Consequently, this would be an effective method by which to engage with this often time constrained population.

**Telephone**
Residents in this Segment are likely to be heavy users of landline phones for both business and personal use. Telephone advice lines that are open around the clock are a convenient way for this Segment to access information and interact with services at a time that suits them.

Least likely to respond to:
Face-to-face
Local newspapers

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## Local Sustainable Transport Fund (LSTF)

| Project | Lead | DfT grant funding (£) | Total with match funding (£) |
|---|---|---|---|
| A Better Connected South Hampshire | TfSH | 17.84 mill | 24.17 mill |
| Southampton Sustainable Travel City | SCC | 3.96 mill | 7.28 mill |

TfSH – Transport for South Hampshire
SCC – Southampton City Council

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# Centre for Sustainable Travel Choices

UNIVERSITY OF Southampton

sustrans JOIN THE MOVEMENT

***Partnership Working***

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# Objectives

- A 12 percentage points change in modal share away from the private car to other modes
- A real terms cut in emissions from transport (including freight) of between 10-20% despite the addition of 7 million more trips per annum over the next 20 years
- Facilitate the development aspiration of the City including 30,000 new jobs to 2026
- Economic growth by sustainable access, improved local employment opportunities and enhanced business performance
- Improve levels of physical activity, health and wellbeing through increased active travel

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## How it's delivered

**Walking and cycling**
- Community projects
- Adult cycle training
- Cycle maintenance training
- Bike Dr
- Led walks and rides
- Health promotion

**Public transport**
- Bus stop enhancements
- Station travel planning
- Brompton Dock (cycle hire)
- Promotion of Solent Travelcard

**Smarter driving**
- Car clubs
- Car sharing
- Smarter driver training

**Freight**
- Sustainable Distribution Centre
- Promotion of green deliveries

**Infrastructure changes**
- Eastern Cycle Route
- Station Quarter (North) public realm scheme
- Real Time Information for Buses
- Pedestrian wayfinding

**Marketing & campaigns**
- My Journey marketing
- Website
- My Journey Roadshows
- Events (e.g. SkyRide)
- Journey Planner
- Personal Journey Planning

**Schools**
- Accreditation and campaigns
- Bike-It
- Independent travel training
- Walk once a week
- College travel plans
- Cycle parking

**Businesses**
- Tailored advice and support
- Specialist business forums
- Commuter Challenge
- Cycle parking
- In to Work with a Solent Travelcard

**Technology**
- Air Alert
- Smart phone apps
- Social media / website

*Video*

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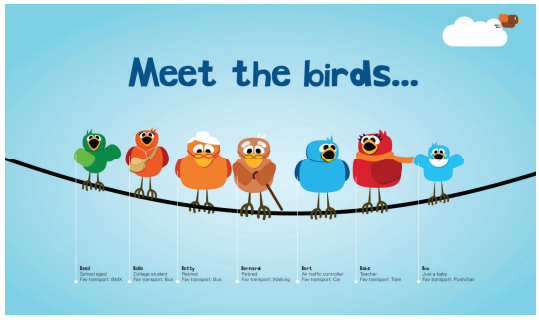
my Journey – HELPING SOUTHAMPTON GET AROUND

## My Journey

my Journey – HELPING SOUTHAMPTON GET AROUND

my Journey – HELPING PORTSMOUTH GET AROUND

my Journey – HELPING HAMPSHIRE GET AROUND

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## Example campaign

- Campaign – awareness raising
- Jan – March 2014
- 57% brand awareness


## Projects: My Journey products

Walking and Cycling

- Free Bike Dr (public, schools, workplaces, community events)
- Maintenance courses = £5
- City cycle training = £5
- Bike loan schemes at community centres
- Volunteer led health walks
- Joint Public Health project in Redbridge and Coxford wards
- Sustrans Active Steps

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# Projects: Into Work with a Solent Travel Card

Access to employment

*In partnership with Southampton Job Centre Plus*

**Criteria**

- Unemployed for around 13 weeks
- 18-24 years
- Transport costs as a barrier
- Transport horizons

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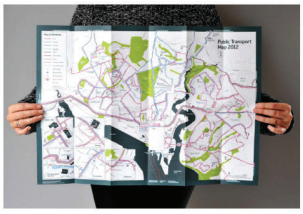
# Projects: Legible Networks





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Design A
Design B
Design C
Design D
Design E
Bus Departures
Shirley
City Centre
2A 3 46
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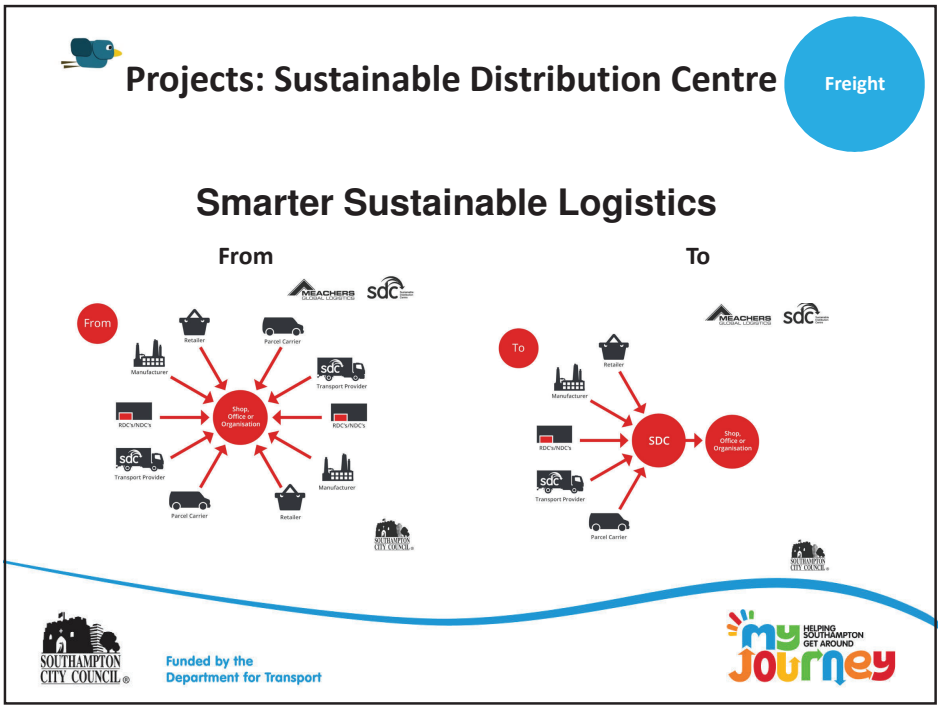
Projects: Sustainable Distribution Centre
Freight
Smarter Sustainable Logistics
From
To
From
Retailer
Parcel Carrier
Manufacturer
Transport Provider
RDC's/NDC's
Shop, Office or Organisation
To
SDC
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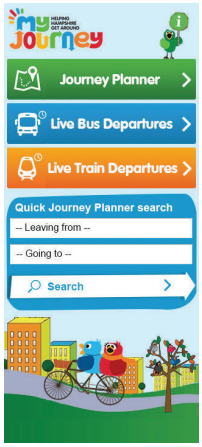
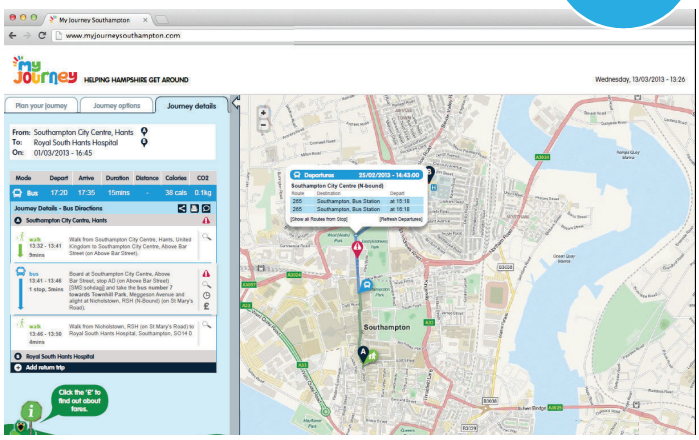
# Project: Journey Planner

Technology

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# Our Approach to the Bus

## LSTF – Physical Measures

*Bus priority*

*South Hampshire Smartcard*

## BBAF – Softer Measures

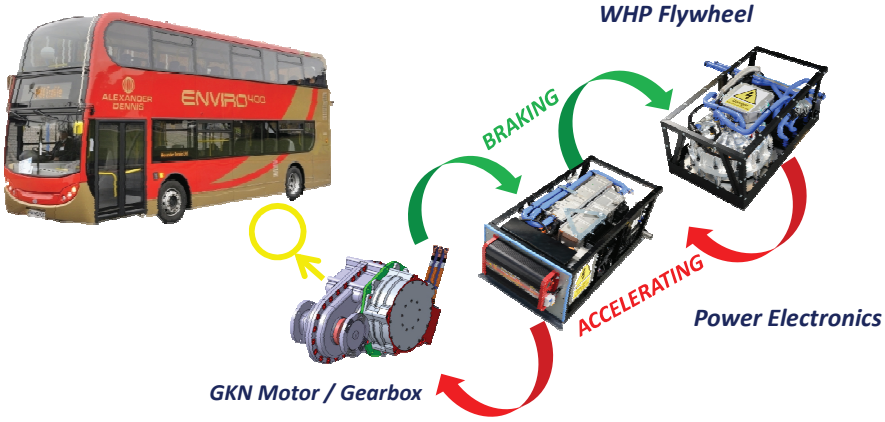

*Next Stop Audio-Visual Systems*

*Bus refurbishment*

## CBTF – Environmental & Air Quality Measures

Funded by the Department for Transport

## Cleaner Vehicle Bus Technology Fund

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## Further information

www.myjourneysouthampton.com

Thank you for listening.

*Any questions?*

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# Southampton City Council
# Scrutiny Inquiry Panel - Air Quality

20 November 2014

Steve Guppy, Team Leader – Scientific Service




## Ultra Low Emission Vehicles

- **Produces 75g or less of CO2 per kilometre from the tailpipe. This is half of the typical output from a modern petrol powered family car.**
- **Currently all commercially available ULEV's use electric power to directly turn the wheels to some degree.**
- **Includes 100% electric car to a plug-in hybrid and an extended-range electric vehicle**

## Ultra Low City Scheme

- Government plans to reach an ultra low emission vehicle (ULEV) majority by 2050.
- Announced a £200M minimum commitment in April 2014 to promote ULEV's over the next 5 years.
- £35M to be made available to 2-4 cities that commit that agree to a step change in ULEV adoption.
- Funding framework to be announced in Autumn 2014

## Ultra Low City Scheme – What we know

- Local air quality issues will be important in the evaluation.
- Winning cities will need to show real ambition and innovation, realise the benefits on a visible scale and become international exemplars.
- Suggested measures include; ULEV car club support, infrastructure for residents, parking policy, changing their own fleets and measures to access bus lanes.

## Ultra Low City Scheme – The benefits

- An opportunity to make significant changes whilst safeguarding the council's finances
- An improvement to the quality of the fleet using our roads delivered in a way that maintains current trends in modal shift.
- Improvements to local air quality.
- A head start and commercial advantage over other cities.
- International attention and a positive influence on inward investment.

## Low Emission Strategy

- A precursor to ULEV City Status?
- The LES will;
  - Generate stakeholder interest and raise the profile of air quality and social responsibility.
  - Identify opportunities to reduce emissions, including measures to promote ULEV's.
  - Select and implement opportunities that are deliverable.
  - Introduce a framework of policies and procedures to assist the adoption of low emission technologies.

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| | | | | |
|---|---|---|---|---|
| **DECISION-MAKER:** | | SCRUTINY PANEL – AIR QUALITY | | |
| **SUBJECT:** | | REVIEW OF EVIDENCE | | |
| **DATE OF DECISION:** | | 18 DECEMBER 2014 | | |
| **REPORT OF:** | | ASSISTANT CHIEF EXECUTIVE | | |
| **CONTACT DETAILS** | | | | |
| **AUTHOR**: | **Name:** | **Louise Fagan** | **Tel:** | **023 8083 2644** |
| | **E-mail:** | **Louise.fagan@southampton.gov.uk** | | |
| **Director** | **Name:** | **Suki Sitaram** | **Tel:** | **023 8083 2060** |
| | **E-mail:** | **Suki.sitaram@southampton.gov.uk** | | |

| **STATEMENT OF CONFIDENTIALITY** |
|---|
| None |

**BRIEF SUMMARY**

For the fifth meeting of the Air Quality Inquiry the Panel will consider comments from Dr Alan Whitehead MP, Dr Beth Conlan, Business Manager at Ricardo—AEA and Dr James Cooper, Head of National Air Quality at Defra (Department for Environment, Food and Rural Affairs). They have been invited to comment on key issues the Panel's final report may seek to address.

Guests invited have considerable knowledge on air quality and environmental issues from a local, national and International perspective. Southampton City Council's Scientific Service – Team Leader, will also be in attendance.

**RECOMMENDATION:**

(i) The Panel is recommended to consider the comments made by Dr Alan Whitehead MP, Dr Beth Conlan (Ricardo—AEA) and Dr James Cooper (Defra) as evidence in the review.

**REASON FOR REPORT RECOMMENDATIONS**

1. To enable the Panel to compile a file of evidence in order to formulate findings and recommendations at the end of the review process.

**ALTERNATIVE OPTIONS CONSIDERED AND REJECTED**

2. None.

**DETAIL (Including consultation carried out)**

3. In May 2014 the World Health Organisation (WHO) released a report, which

named Southampton as one of the worst cities in the UK to be breaching air pollution safety guidelines (specifically for PM 10 – particulate matter).

4. Southampton City Council established a Panel to undertake an inquiry into Air Quality. The purpose of the Panel has been to seek to identify what additional steps can be taken, if necessary, to improve air quality in Southampton. The inquiry's Terms of Reference (ToR) have been attached as Appendix 1.

5. The Panel has met on four different occasions with a final report scheduled for 22 January 2015. The Panel has received evidence from the following:-

- Public Health
- Port of Southampton - Associated British Ports and DP World
- Sustainable Distribution Centre – Meechers Global Logistics
- Bus companies – First Bus Hampshire and Go South Coast
- Post Graduate Student - University of Southampton
- Western Docks Consultative Forum
- SCC departments – incl. Regulatory Services, Transport, Planning Policy, Fleet, Licensing and Sustainability
- Residents survey -298 responses
- Solent Transport

6. Key issues that the final report may seek to address include the following: -

1. Ambition and vision - Ultra-Low City Status?
2. Low Emission Zones and Low Emission Strategy
3. Joined up working across the council
4. Strengthening the Planning function
5. Communications on Air Quality

7. The Panel have an opportunity to discuss potential areas of recommendations with Dr Alan Whitehead MP and Dr Beth Conlan (Ricardo—AEA). Both guests invited may also use the opportunity to highlight other areas the Panel should be considering as it looks to develop its recommendations the end of January 2015.

8. Dr Alan Whitehead MP – Southampton Test, is a member of the House of Commons Environmental Audit Committee, which has recently released their Action for Air Quality report. He is also a member of the Energy and Climate Change Committee, and member of the all-party parliamentary renewable and sustainable energy and sustainable resources groups.

9. Dr Beth Conlan, Business Manager at Ricardo-AEA, a leading provider of analysis, advice and data on economically sustainable solutions for the most pressing global energy and environmental challenges. Dr Conlan has advised the European Commission on air quality and has worked with Defra in the review of local air quality management. She has also worked with Defra and the Health Protection Agency on communicating air quality issues to health protection professionals within local Health and Wellbeing Boards.

10. Head of National Air Quality at Defra Dr James Cooper is not available to attend the meeting. However he has been asked to provide comments in advance of the meeting which will be made available to the Panel.

11. The guests invited to present information at the meeting will take questions from the Panel relating to the evidence provided. Copies of any presentations will be made available to the Panel.

**RESOURCE IMPLICATIONS**

**Capital/Revenue**

12. N/A

**Property/Other**

13. N/A.

**LEGAL IMPLICATIONS**

**Statutory power to undertake proposals in the report:**

14. The duty to undertake overview and scrutiny is set out in Part 1A Section 9 of the Local Government Act 2000.

**Other Legal Implications:**

15. None

**POLICY FRAMEWORK IMPLICATIONS**

16. None

**KEY DECISION?** No

| | |
|---|---|
| **WARDS/COMMUNITIES AFFECTED:** | None directly as a result of this report |

## SUPPORTING DOCUMENTATION

**Appendices**

| | |
|---|---|
| 1. | Air Quality Inquiry – Terms of Reference |

**Documents In Members' Rooms**

| | |
|---|---|
| 1. | None |

**Equality Impact Assessment**

| | |
|---|---|
| Do the implications/subject of the report require an Equality Impact Assessment (EIA) to be carried out. | No |

**Other Background Documents**

**Equality Impact Assessment and Other Background documents available for inspection at:**

| | Title of Background Paper(s) | Relevant Paragraph of the Access to Information Procedure Rules / Schedule 12A allowing document to be Exempt/Confidential (if applicable) |
|---|---|---|
| 1. | None | |

## 1. Scrutiny Panel membership:

a. Councillor Christopher Hammond
b. Councillor Hannah Coombs
c. Councillor Steven Galton
d. Councillor Cathie McEwing
e. Councillor Brian Parnell
f. Councillor Asa Thorpe
g. Councillor Paul O'Neil

## 2. Purpose:

To develop understanding of the issue of air quality in Southampton and to identify what additional steps can be taken, if necessary, to improve it.

## 3. Background:

- In May 2014 the World Health Organisation (WHO) released a report, which named Southampton as one of the worst cities in the UK to be breaching air pollution safety guidelines (specifically for PM 10 – particulate matter).

- The main cause of air pollution in the UK is emissions from motor vehicles. In Southampton additional sources of air pollution include industrial emissions, shipping emissions as well as airflow from the continent.

- Local authorities have an important part to play in helping to improve air quality. This includes coordinating local assessment and action; taking air quality into account when undertaking transport functions, ensuring the planning system is deployed to limit deterioration of air quality (or exposure) and where possible to improve air quality and promote the public health benefits of good air quality.

- Provisions in the Localism Act allow the Government to pass down fines from the EU to a local level. Defra has indicated that it intends to do this if Air Pollution targets are not met. In addition Public Health England (PHE) is now urging local authorities to do more to protect people from harmful air pollution.

## 4. Objectives:

a. To increase understanding of air quality issues within Southampton
b. To examine the causes and impacts of air pollution
c. To understand the actions being taken to reduce air pollution in Southampton
d. Learning from best practice, to identify ways of improving air quality in the city now and for future generations.

## 5. Methodology:

a. Undertake desktop research
b. Seek stakeholder views, including through use of social media
c. Identify best practice

## 6. Proposed Timetable:

Six meetings July/August 2014 – December 2014/January 2015

**7. Inquiry Plan** (subject to the availability of speakers)

**Meeting 1: Thursday 31st July**

- Introduction, context and background – Overview of air quality in Southampton and national comparison.

To be invited:

- Lead Cabinet Member
- Independent expert
- Environmental Health

**Meeting 2: Thursday 18th September**

To examine the impact of poor air quality.

- Public Health
- Residents perspective

To be invited:

- Public Health
- Residents Groups, including Western Docks Consultative Forum

**Meetings 3 & 4: Thursday 23rd October and Thursday 20th November**

- To identify the causes of air pollution in Southampton, the areas worst affected, and the actions that are being taken, or are planned to address air quality in Southampton.

To be invited:

- Transport for South Hampshire (TfSH)
- ABP
- DP World
- Bus Companies
- Meechers Global Logistics (Sustainable Distribution Centre)
- Council Officers from Transport, Environmental Health, Sustainability, Planning, Licensing

**Meeting 5: Thursday 18th December**

To identify best practice

To be invited:

- Defra
- SusTrans
- Other local authorities

**Meeting 6: Thursday 22nd January**

- To approve the final report of the inquiry and recommendations

| | | | | |
|---|---|---|---|---|
| **DECISION-MAKER:** | | SCRUTINY PANEL – AIR QUALITY | | |
| **SUBJECT:** | | WOODLAND TRUST – URBAN AIR QUALITY REPORT | | |
| **DATE OF DECISION:** | | 18 DECEMBER 2014 | | |
| **REPORT OF:** | | ASSISTANT CHIEF EXECUTIVE | | |
| **CONTACT DETAILS** | | | | |
| **AUTHOR**: | **Name:** | **Louise Fagan** | **Tel:** | **023 8083 2644** |
| | **E-mail:** | **Louise.fagan@southampton.gov.uk** | | |
| **Director** | **Name:** | **Suki Sitaram** | **Tel:** | **023 8083 2060** |
| | **E-mail:** | **Suki.sitaram@southampton.gov.uk** | | |

| **STATEMENT OF CONFIDENTIALITY** |
|---|
| None |

**BRIEF SUMMARY**

Throughout the Air Quality inquiry the Panel have heard evidence that certain types of trees can help absorb harmful pollutants and improve air quality. In April 2012 the Woodland Trust produced a report on urban air quality, attached as Appendix 1, which is to be considered by the Panel as evidence in the review.

**RECOMMENDATION:**

(i) The Panel is recommended to consider the content of the Urban Air Quality report and use as evidence in the review.

**REASON FOR REPORT RECOMMENDATIONS**

1. To enable the Panel to compile a file of evidence in order to formulate findings and recommendations at the end of the review process.

**ALTERNATIVE OPTIONS CONSIDERED AND REJECTED**

2. None.

**DETAIL (Including consultation carried out)**

3. In April 2012, the Woodland Trust produced a report on urban air quality which contains a wealth of information on trees in urban areas. The report highlights the need for the careful planning of green infrastructure as it can ensure that trees and other vegetation are well sited to maximise the opportunities for improving air quality.

**RESOURCE IMPLICATIONS**

**Capital/Revenue**

4. N/A

**Property/Other**

5. N/A.

**LEGAL IMPLICATIONS**

**Statutory power to undertake proposals in the report:**

6. The duty to undertake overview and scrutiny is set out in Part 1A Section 9 of the Local Government Act 2000.

**Other Legal Implications:**

7. None

**POLICY FRAMEWORK IMPLICATIONS**

8. None

**KEY DECISION?** No

| | |
|---|---|
| **WARDS/COMMUNITIES AFFECTED:** | None directly as a result of this report |

## SUPPORTING DOCUMENTATION

**Appendices**

| | |
|---|---|
| 1. | Woodland Trust – Urban Air Quality report |

**Documents In Members' Rooms**

| | |
|---|---|
| 1. | None |

**Equality Impact Assessment**

| | |
|---|---|
| Do the implications/subject of the report require an Equality Impact Assessment (EIA) to be carried out. | No |

**Other Background Documents**

**Equality Impact Assessment and Other Background documents available for inspection at:**

| | Title of Background Paper(s) | Relevant Paragraph of the Access to Information Procedure Rules / Schedule 12A allowing document to be Exempt/Confidential (if applicable) |
|---|---|---|
| 1. | None | |

WOODLAND TRUST

# Urban air quality

# URBAN AIR QUALITY

**April 2012**

Jim Smith

# Urban air quality

Whilst air quality in the UK has improved in recent decades, concentrations of some pollutants, such as oxides of nitrogen, are now leveling off and there remain serious health issues relating to air pollution, particularly in towns and cities. Air quality is often listed as one of the potential benefits of increasing tree cover in urban areas, but few urban greening projects appear to take into account how air quality goals can best be achieved.

The main pollutants of concern are particulate matter (PM), oxides of nitrogen, and ground-level ozone. Road transport and the burning of fossil fuels, for instance in large fuel-burning plants such as power stations, are the biggest sources of these pollutants.

According to the Department of the Environment, Food and Rural Affairs, the economic cost from the impacts of air pollution in the UK is estimated at £9-19 billion every year. Amongst the worst affected are poorer areas, which are often in urban areas, close to busy roads and inadequately served by green space.

Estimates indicate that air pollution reduces life expectancy in the UK by seven to eight months, according to the Environmental Audit Committee (2010). Air pollution causes irritation of the lungs and can worsen lung conditions, including asthma. Poor air quality also affects people with heart conditions, especially when combined with high summer temperatures.

Increasing tree cover in urban areas can help mitigate the 'urban heat island effect'. The urban heat island occurs in towns and cities because the buildings, concrete and other hard surfaces such as roads absorb heat during the day and release it at night. The resultant effects can be dramatic; on some days there is a difference of as much as 10°C between city centres and the surrounding areas.

The impact on health of urban heat islands is two-fold. Firstly, higher temperatures can increase ground-level ozone, exacerbating the symptoms of chronic lung conditions. Secondly, prolonged high temperature can bring on heart or respiratory failure or dehydration, particularly amongst the elderly, very young or chronically ill (Bhattachary 2003).

The heat island problem is exacerbated by a lack of green space in cities. Green space, and trees in particular, provide both direct cooling from shade and reduce the ambient temperature through the cooling effect of evaporation of water from the soil and through plant leaves.

Although some trees produce pollen which can affect a proportion of hay fever sufferers, the overall benefits of trees to air quality respiratory health are overwhelmingly positive (Hewitt 2005). According to the British Lung Foundation one in every seven people in the UK is affected by lung disease — almost 8 million people (British Lung Foundation, undated).

## The importance of trees and urban green space

There is evidence that urban trees remove large amounts of air pollution and improve urban air quality (Nowak *et al* 2006). Columbia University researchers found asthma rates among children aged four and five was significantly lower in areas with more street trees (Lovasi *et al* 2008). The UK has one of the world's highest rates of childhood asthma, with about 15 per cent of children affected and a higher prevalence in lower socio economic groups in urban areas (Townshend 2007).

Research in recent years has begun to identify how urban greening, and tree planting in particular, might be tailored to achieve air quality goals whilst still fulfilling many of the other beneficial functions of urban green space. Not all vegetation positioning yields an equal pollutant removal potential. Local airflows and pollutant concentrations will significantly affect the efficiency with which vegetation can remove pollution (MacKenzie et al., 2011).

WTPL/Richard Barnes

Urban vegetation is often concentrated in parks or private gardens, where pollutant concentrations are likely to be relatively low. Whilst this vegetation has many other benefits (reducing heat island effect, mitigating surface water run-off, supporting biodiversity etc), vegetation near polluted areas will scrub the air of pollutants more effectively.

Where improving air quality outcomes is the primary objective, planting in areas of high pollution, for instance 'hotspots' such as traffic junctions and traffic lights, will yield proportionately greater rates of pollutant removal (Mitchell and Maher, 2009). But care must be taken not to reduce dispersion from local pollutant sources such as traffic, which may lead to local concentration increases, despite the overall reduction (see the case of street canyons, below).

Tree-for-tree, single trees and trees on the edge of woodland collect particles more efficiently than those in the centre of a woodland (Branford et al., 2004; McDonald et al., 2007). This deposition 'edge' effect can be used for screening of high pollution sources. Dense trees in conjunction with understory plants to leeward of air pollution sources can maximise pollutant scrubbing by plants.

Greatest benefits could be achieved by two or three rows of trees with a relatively high planting density (Jim and Chen, 2008). Screening by a single tree alone has been estimated to reduce PM concentration by 15-20 % immediately behind the tree (Bealey et al., 2007; Mitchell and Maher, 2009).

## The problem of street canyons

The zone between rows of buildings along a street is often called a 'street canyon.' Street canyons can trap pollutants because the air in the canyon exchanges only slowly with the air above. Concentrations of pollutants emitted at the bottom of the canyon are highest at the base of the windward wall (Gromke and Ruck, 2009; Bucciolieri et al., 2009). Where the prevailing wind is consistently from one direction, there may be an advantage to planting trees and other vegetation near the windward wall where it can capture pollutants.

The rate of exchange of air between canyon and the overlying atmosphere decreases as the height-to-width ratio of the canyon increases — i.e., is reduced in narrow streets with tall buildings (e.g. Oke, 1988). Where the street canyon contains a pollutant source this reduced-exchange effect can

WTPL/Richard Barnes

WTPL/Mike Townsend

lead to greatly increased pollutant concentrations at street-level ; where people are most likely to be exposed (DePaul and Sheih, 1986).

Although vegetation in street canyons can remove pollutants, recent research suggests that avenues of street trees within the worse polluted street canyons might reduce mixing and dispersion and hence exacerbate air quality problems at the street-level (Gromke and Ruck, 2009; Buccolieri et al., 2009). Whilst these studies do not account for the effects of deposition to vegetation, they highlight that there may be a balance to be struck, and that the greatest benefits of street trees may be in the less polluted canyons.

Factors such as crown porosity are also important; denser crowns will have a greater trapping effect (Gromke and Ruck, 2009), but are also likely to have greater pollutant deposition.

## Species choice

Species choice has a large influence on the potential for pollutant scrubbing by trees and other vegetation.

Evergreen species contribute to pollutant scrubbing year-round; deciduous species are limited to stem deposition only in winter. The contribution of stems to particulate deposition can be substantial, dependent on species (Freer-Smith et al., 2004). When in leaf, broadleaf species may also be more efficient than needle-leaf species, due to the higher leaf surface area of broadleaf trees (Jim and Chen, 2008).

The differences between tree species play an important role in estimating particulate capture; leaves with complex shapes, large circumference-to-area ratios, waxy cuticles or fine hairs on their surfaces collect particles more efficiently (Tiwary et al., 2009). In particular leaf surfaces appear to be important, with ridged hairy leaves giving the highest particle deposition (Mitchell et al., 2010).

Plants with low 'stomatal conductance' – the rate at which water vapour and gases pass through the

openings on the leaf surface – can better tolerate high levels of gaseous pollutants (although they will also be less efficient at removing them from the atmosphere) (Kozlowski, 2003). Therefore, in areas of very high pollution, such plants may be selected due to their increased vitality under these conditions. However, since around a third to two thirds of ozone deposition (Fowler et al., 2009) and nearly all particulate deposition(most associated with detrimental health effects), is 'non-stomatal', i.e. on the leaf surface, the potential of any tree to improve air quality remains high.

Biogenic volatile organic compounds (BVOCs) emitted by trees can cause increases in ozone pollution, acting contrary to the pollution-scrubbing effect. Not all species emit BVOCs at the same rate, therefore selection of low BVOC emitting species where possible can decrease the risk of high-ozone episodes.

In an attempt to balance the pollution-scrubbing and BVOC emission effects of trees, an urban tree air quality score (UTAQS) has been developed (Donovan et al, 2005). The UTAQS classifies trees by weighing up their ability to reduce and to exacerbate air pollution, with a higher score indicating a better species choice for air quality purposes. Figure 1 shows the classification of 30 of the most common UK urban tree species using UTAQS.

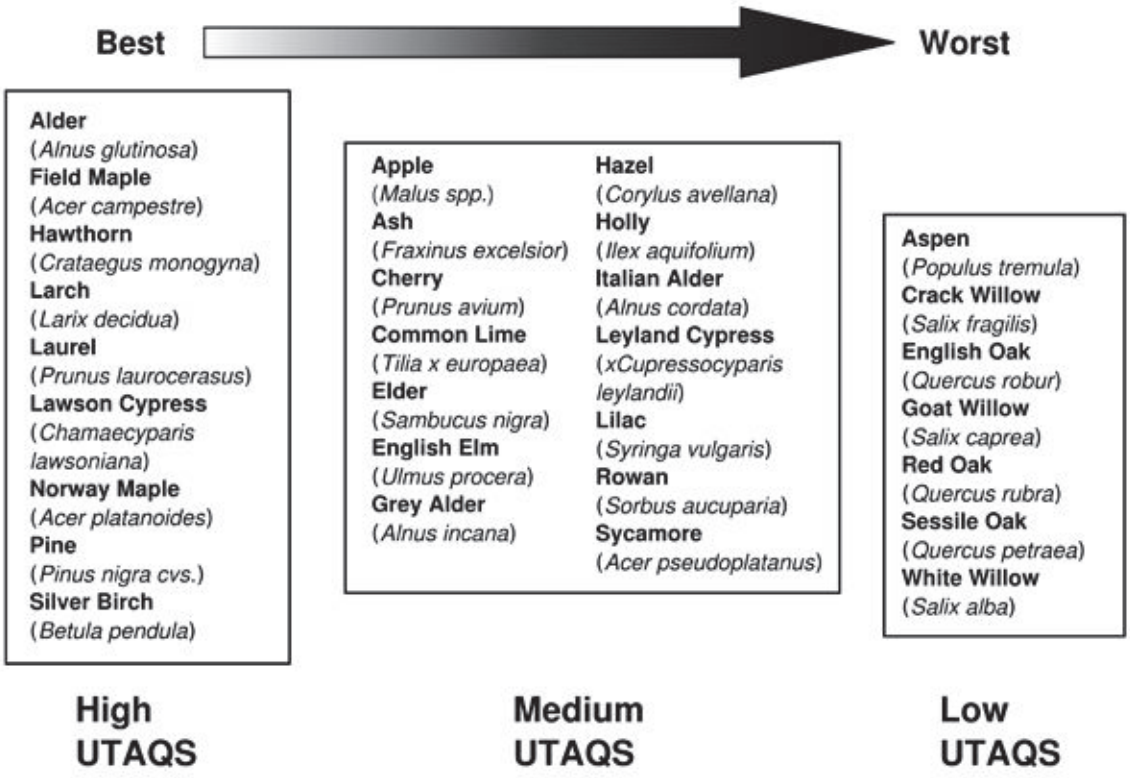


Figure 1. Urban tree air quality score (UTAQS) classification for 30 tree species common in the West Midlands metropolitan area, UK.



The size of the tree also affects its ability to capture particles. Trees with a large leaf area can remove many times more particulate pollution per year than small ones (60-70 times in one study; Nowak, 1994), although younger trees tend to be disproportionally effective (relative to their leaf area) due to their greater foliar densities (Beckett et al., 2000).

WTPL/Mike Townsend

## The importance of tree maintenance

Tree species selection and positioning are critical initial steps in designing green infrastructure to improve air quality. However, like any infrastructure, vegetation will act more effectively to remove air pollutants if it is properly maintained; the resilience of sustainability solutions like tree planting, in the face of an uncertain future, is often overlooked (Pugh et al., 2012; Boyko et al., 2011). Careful maintenance to ensure plant health will increase the leaf area and increase the pollution-scrubbing effect of plants (Jim and Chen, 2008).

## Changing the way we live

Although much can be done to improve the choice and siting of trees and other vegetation for air quality, the greatest benefits will be achieved if people can be close to, or even within, green infrastructure when moving around towns and cities. For instance, the largest decreases in particulates due to uptake by vegetation were in the green spaces themselves (Tiwary et al, 2009). The health benefits to people are greatest, therefore, if pedestrians use parks and other green spaces rather than the pavements alongside busy roads. Geographical information systems and mobile phone applications can now be used to plot routes of least air pollutant exposure, taking advantage of vegetated areas (Davies and Whyatt 2009). Such methods may also be useful in planning large-scale greening, or to optimise routes to and from major businesses, schools or shopping areas.

## Planning for air quality

Air quality remains a persistent problem in many towns and cities, with consequent costs to public health and the environment. Careful planning of green infrastructure can ensure that trees and other vegetation are well sited to maximise the opportunities for improving air quality.

Careful selection of tree species can also help to ensure that the positive impacts are greatest and any negative impacts minimised. However the large scale planting of almost all tree species will have a positive effect on air quality (Donovan et al., 2005).

Careful, but not necessarily onerous, maintenance of tree cover in urban areas will ensure that trees

thrive and continue to remove pollutants.

# Acknowledgements

This booklet was prepared by Mike Townsend of the Woodland Trust with the assistance of Dr Tom Pugh and Prof Nick Hewitt, both of Lancaster University, and Prof Rob MacKenzie of the University of Birmingham. The material was prepared as part of the outreach programme of the Urban Futures project (https://connect.innovateuk.org/web/urban-futures) of the Engineering and Physical Sciences Research Council, grant number EP/F007426/1, and draws on previous research from the URGENT programme of the Natural Environment Research Council, grant number GST/02/2236.

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