

Improving air quality now: options for integrated management of transport and its impacts

Air Quality Management Resource Centre UWE/
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Air Quality: the 11th Hour

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Overview

- Context
- Characteristics of urban space
- Integrated approach to management and its elements
- Cleaner vehicles and fuels
- Implementation issues and initiatives
- Construction
- Cost effectiveness
- Action on existing fleets
- Conclusions

Context

- Environmental pressures continue in urban areas
- Transport is a major factor
- Significant improvements in environmental performance of individual vehicles, but
- Activity levels continue to rise
- Consequences are:
 - Congestion
 - Noise
 - Rising emission of greenhouse gases
 - Continued challenge to attainment of air quality standards: PM and NO₂
- Generally agreed that a more integrated approach needed
- What are the options or elements of a strategy?

Urban Space, Characterised by:

What is seen/felt

- Noise
- Congestion
- Conflicts between road users
- Proximity of vehicles and pedestrians
- Conflict between road users and pedestrians (for space)
- Construction works

What is unseen

- Air pollution
- Greenhouse gas emissions
- Stress

Transport/Vehicles a major factor



Chris Orr, Jam Utopia, from The Multitude Diaries

Managing Urban Space: the Current position

- Framework of National Strategies, delivered through Local Authorities:
 - AQS
 - Planning Guidance
- Separation of administrative function:
 - Planning
 - Transport planning
 - Environment
- Many initiatives at local level but:
 - Single policy issues tend to dominate
 - Integration is a challenge
- Cost effectiveness is an incentive for integration
 - Co-benefits
 - Planning agreements
- Finding cost effective options for integration remains a problem

An Integrated Approach to Urban Transport: characteristics

- Awareness of impacts as a whole
- Aiming to manage causes as a whole
- Accept that there may be principal policy drivers:
 - Air Quality Standards
 - Reducing climate impacts
- Take every opportunity for achieving co-benefits from co-management
- Focus on actions of local partnerships

Elements of an Integrated Approach

- Cleaner vehicles
- Cleaner fuels
- Better transport planning
- Public Transport
- Travel to work plans
- Low Emission Zones
- Low Emission Strategies
- Cleaner construction machinery

Cleaner Vehicles

- Many options: low impacts on air quality, climate and quieter
- The issue is entry into service
- Now many local initiatives



Cleaner Fuels

- Electric traction: niche at present, future potential?
- Hybrid, diesel/electric, petrol/electric or plug in: in service and on trial
- Gas: NG, CNG, biomethane
- Potential for Biomethane: integrated management of waste, landfill emission and reduction of fossil fuel use

Achieving Integrated Approaches

- Taking opportunities from current plan/strategies
 - AQS
 - Planning guidance
- New initiatives
 - Cenex
 - LES Partnership
- Revisiting initiatives
 - GLA BPG
- New initiatives needed?

Implementing Low Emission Vehicles

- Cenex: government initiative; aim to improve uptake of low emission vehicles
- Focus on low carbon and public fleets, but takes holistic approach, Low C and AQ
- Current trials: biomethane and Smart ED



Low Emission Strategies

- Local Authority Driven
- Uses planning system to ensure new development have lowest impact possible
- Use of Section 106 agreements to promote environmental performance
- Currently, partnership with Peer Group of 15 local authorities
- Good practice Guidance Published
- Now many examples of LES in practice

Low Emission Strategies in Practice

- Greenwich: quantifying benefits
- South Cambridgeshire: LES for the new town of Northstowe
- Mid Devon: Contribution to transport planning from supermarket development
- Sheffield: development of a Low Emission Supplementary Planning Document
- Leeds: New Generation Transport

Construction

- Construction machinery now a major factor in quality of urban life: PM, noise, odour



- Best Practice Guidance from GLA: retrofit DPF
- Now time to put it into effect
- Impacts on construction costs low
- Low S fuels widely available for construction machinery

Integration can be cost effective

- Potential for improved cost effectiveness where multiple objectives achieved
- Co-benefits can be harvested and used in planning
- Examples from addressing air quality and mitigating climate change
- More efficient vehicles will give low C and low regulated emissions
- Also potential for measures on existing fleets

Action on Existing Fleets

- Case Study: reducing PM and Climate Impacts of diesel
- Retrofit DPF gives PM control
- Also controls Black Carbon, a potent warming agent ($\text{GWP}_{20} \sim 2500$)
- Calculation: (Euro III Single Decker Bus)
- DPF saves ~ 300 tonnes CO_2_e over 10 years
- At cost of $\sim \text{£}10/\text{tonne CO}_2$
- Added to health benefits, makes retrofit more clearly viable

Key Challenges

- Real integration:
 - Priority concerns can dominate to detriment of others;
 - CC vs AQ: “dieselisation”
 - Transport and Environment planning: how joined up?
- Quantifying benefits
 - Difficult to estimate emission impacts of better planning
 - Evaluation of benefits of low emission vehicles
 - Requires greater research effort
- Demonstrations
 - Good examples and some brave initiatives
 - Need rapid increase in number and scale
 - More results needed urgently

Conclusions

- Integrated management of transport urgently needed
- Could deliver benefits across impacts
- Potential for greater cost effectiveness
- Many good examples: initiatives and projects
- Urgent need for more projects and better data
- Considerable scope for local action
- Integration is hard to achieve but rewards are significant