



Effective Measures for Action Planning – Guidance on options appraisal and specific schemes

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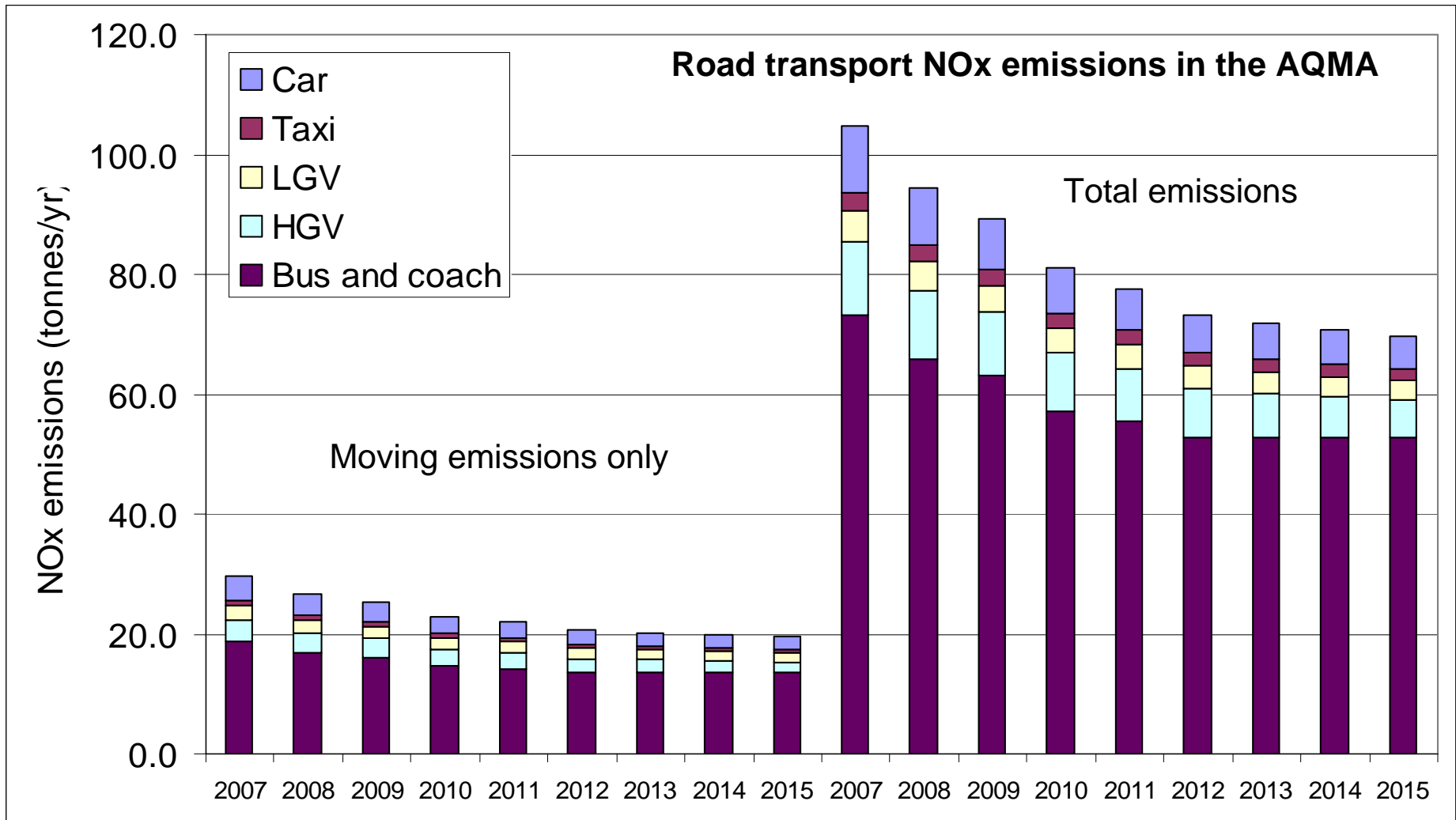
Introduction and content

- Revised and expanded guidance
- <http://www.defra.gov.uk/corporate/consult/airqualitymanage-guidance/index.htm>
 1. Action planning – appraisals
 2. Guidance on specific schemes to reduce transport emissions

Action planning - appraisals

1. Baseline source apportionment
2. Define schemes or options
3. Emissions/air quality appraisal
4. Cost appraisal
5. Economic appraisal – “value for money”

Baseline source apportionment



Scoping or defining options

1. Vehicle type

- In urban centres may be effective to begin with buses and coaches then heavy goods vehicles then small vehicles
- For isolated junction-type hotspots may be more effective to consider all vehicles

2. Indicator

- Emission factor (e.g. age or size)
- Activity (e.g. number of vehicles or mileage)

3. Method

- Voluntary, regulatory or fiscal approaches to influencing emission factors
- Regulatory or 'smarter choice' approaches to influencing activity

4. Objective (target and year) Examples

- E.g. All commercial bus services through the AQMA to be Euro IV standard by 2011

Emissions/air quality appraisal

1. Emission inventory is a key tool
 - Activity (veh km) x emission factor (g/km) = E (t)
 - Needs to be of sufficient detail to examine the impacts of the proposed options over time
2. Dispersion models
 - Ideally detail in the emission inventory is matched in the detail of the traffic model (I.e. inputs to the dispersion model)
3. New technical guidance to help with these issues

Cost appraisal

1. Full costs to society should be estimated
 - Costs to the authority of implementing the scheme
 - Costs to operators to comply with the scheme
 - Include capital and operating costs
 - Costs can be estimated from previous examples or from specific investigation.
2. Costs are not constant over time. Inflation and future discounting should be accounted for to produce 'equivalent' costs. New guidance is provided to accomplish this simply.

Economic appraisal

1. Cost-effectiveness analysis (CEA)

- Directly compare costs of achieving the same objective I.e. “Economic cost (£) to reduce 1 tonne of emission”

2. Cost benefit analysis (CBA)

- Used to assess value for money from the net result of benefits minus costs
- Benefits are quantified from approved government ‘damage cost’ values. E.g. PM10 has an average central high value of £53.4k per tonne abated of transport emissions
- Note that this allows net PM10, NOx and CO2 benefits to be considered
- Note that like costs, benefits in future years should be discounted. New guidance is provided to do this simply.

Benefits of a better approach to appraisal

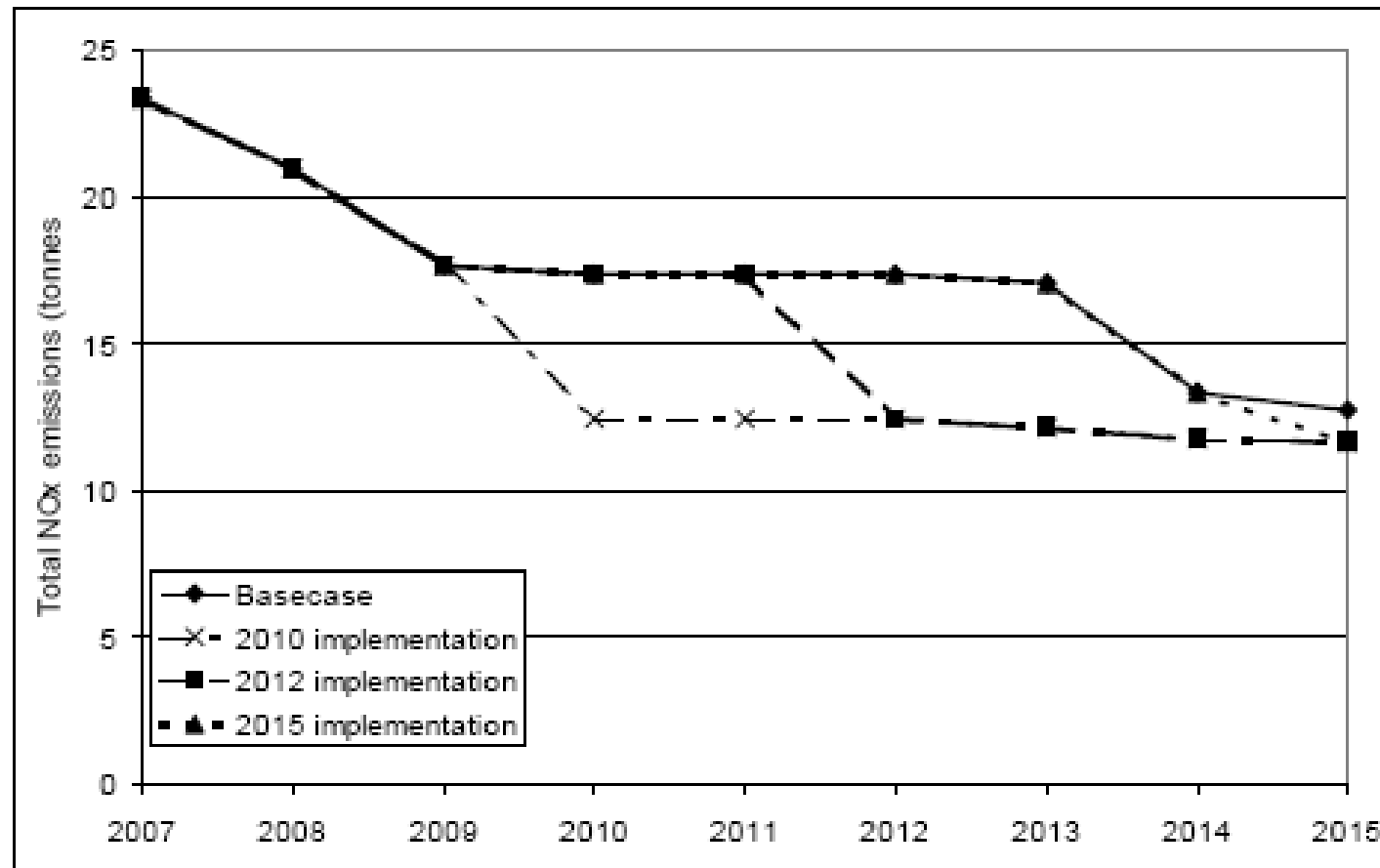
1. Better evidence for stakeholders for negotiations and final decisions – comparison of options
2. Financial evidence
 - Justify budgets
 - Help grant applications
3. Environmental evidence
 - Quantify air quality improvements and remaining exceedence situation
 - Quantify CO2 emissions for a holistic approach

Specific schemes

1. Increase uptake of retrofit abatement equipment
2. Increase uptake of Low Emission Vehicles
3. Introduce Low Emission Zones
 - General guidance (N.B. local findings may differ)
 - Greatest benefits and cost-effectiveness obtained by focussing on urban centres where vehicle activity and potential exposure is densest.
 - Usually best to start with heavy duty diesel powered vehicles
 - Scheme conditions are tightened over time to maintain benefits

Effect of emission standard and year

Figure 1 Graph of annual NO_x emissions for the base case, 2010, 2012 and 2015 implementation dates for a Euro III standard.



Increase uptake of retrofit abatement

1. Technology neutral conditions allow retrofit strategy with lower costs than replacement
2. Minimum of Euro III equivalent up to 2010-12 and higher standard thereafter – providing 3 to 4 years of benefits
3. Examples: London bus and taxi strategies
4. Robust schemes include lists of approved equipment suppliers and a vehicle certification mechanism

Increase uptake of Low Emission Vehicles

1. Focus on light duty vehicles in addition to HDV
2. For LDVs emissions standard of Euro 4 and better than 140g/km CO₂ is encouraged
3. Additional costs but also improved fuel efficiency
4. Relevant examples include residential parking schemes in London Boroughs
 - Richmond: charges related to VED band (CO₂)
 - Greenwich: charges related to age (PM₁₀/NO_x)
 - Westminster: discounts for electric vehicles

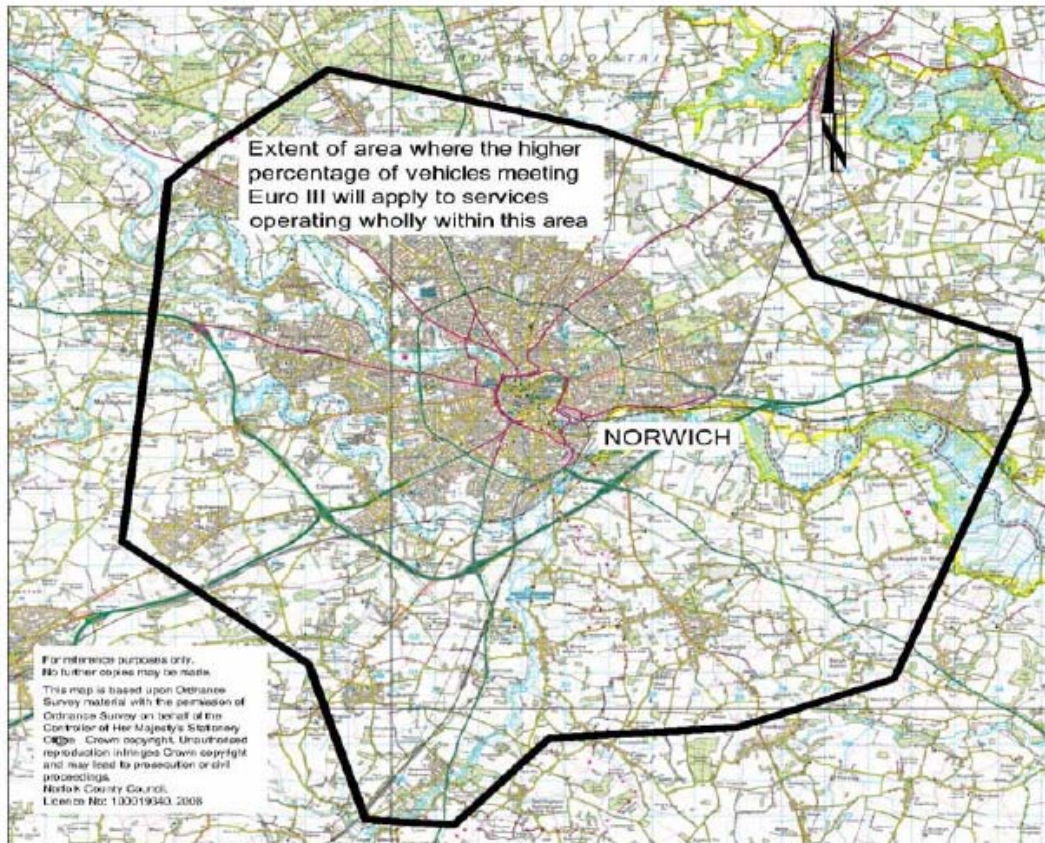
Introduce Low Emission Zones

1. Economic appraisal has shown it is best to focus on heavy duty diesel powered vehicles and buses in particular
2. Minimum of Euro III equivalent up to 2010-12 and higher standard thereafter – providing 3/4 years of benefits
3. Examples: London, Norwich and others planned
4. Simpler and less costly implementation than the London case is encouraged

Norwich Low Emission Zone 1

Zone criteria: Euro III buses (both PM10 and NOx)

Extent of the zone



Norwich Low Emission Zone 2

1. Implemented via Traffic Regulation Condition and developed with close consultation with the operators.
2. Local authority helps with compliance costs and had EU funding allocated to this.
3. Criteria of TRC

A. Local bus services with less than five departures per week from Castle Meadow and are exempt from this.

Operators who have services with both terminal points within the area defined in Figure 1		Operators who have services with a terminal point outside the area defined in Figure 1	
Year	Percentage of vehicles needed to comply with TRC	Year	Percentage of vehicles needed to comply with TRC
1 April 2008	40%	1 April 2008	20%
1 April 2009	70%	1 April 2009	35%
1 April 2010	100%	1 April 2010	50%

Table 1. Indicates the criteria required to meet the TRC

Approaches to implementation

1. Vehicle restrictions – Traffic Regulation Orders
2. Parking restrictions – Traffic Regulation Orders
3. Planning conditions – Section 106 agreements
4. Bus specific
 - Quality bus partnership agreements
 - Quality partnership schemes
 - Quality bus contracts
 - Contract conditions
 - Traffic Regulation Conditions

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