

# Cleaner Air for Northampton

Northampton Low Emission Strategy (NLES)

# Air Quality – What's the Challenge

- Society based on easy movement of goods and people – primarily by road
- Individual choices
- Public pressure
- Understanding impact



# Air Quality – Achieving a Balance

- Economic growth
- Housing / new development
- Planning and design
- Access to services
- Individual Challenges
- Health and Wellbeing

# Air Pollution & Public Health

- Local road traffic contributes substantially to outdoor air pollution, particularly in busy towns and cities
- Emissions from industry, agriculture, commercial and domestic sources are also significant contributors
- Although air pollution has improved in recent decades, our understanding of its impact on public health has increased
- Air pollution still has a significant public health impact in the UK
- Adults and children with heart or lung problems and older people are particularly susceptible to the effects of air pollution
- Both long and short term exposure to air pollution affects health

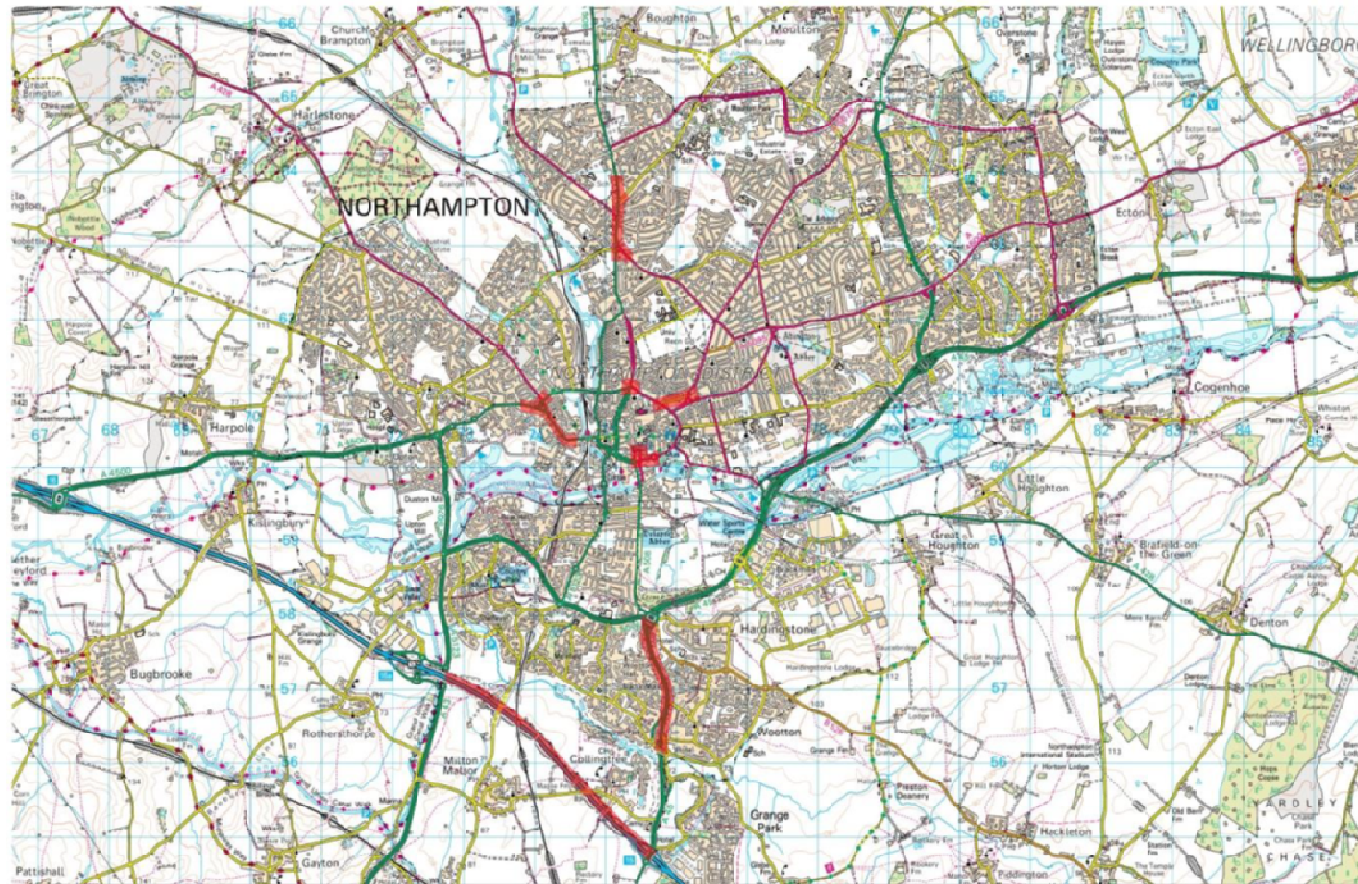
# Nitrogen Dioxide – Why we are here today

- Nitrogen dioxide (NO<sub>2</sub>) and nitric oxide (NO) are gases produced during the combustion of fossil fuels
- In many parts of the UK, especially in urban areas, NO<sub>2</sub> levels near to busy main roads exceed European limits and UK Air Quality Standards
- Local Authorities have declared traffic-related Air Quality Management Areas (AQMAs) in affected areas

# Nitrogen Dioxide – the health impacts

- Short-term exposure to high concentrations of NO<sub>2</sub> causes inflammation of the airways and lining of the lungs, leading to respiratory symptoms and decreased lung function
- Studies have shown associations between long-term exposure to NO<sub>2</sub> and adverse effects, including reduced life expectancy
- It was previously unclear whether these effects were caused by NO<sub>2</sub> or other pollutants from the same sources (e.g. traffic exhaust)
- Evidence of an association between exposure to NO<sub>2</sub> and adverse health effects has strengthened in recent years
- NO<sub>2</sub> itself is now thought to cause some of the health impacts found by epidemiological studies of air pollution mixtures
- There is increasing evidence linking long-term exposure with morbidity and mortality

# Northampton AQMAs



Name:  
Date: 21st October 2014  
User:  
Dept:  
Project:

Title:

Produced from the 2008 Ordnance Survey mapping with the permission of the Controller of Her Majesty's Stationery Office. © Crown Copyright  
Unauthorised reproduction infringes Crown Copyright and may lead to prosecution or civil proceedings. Licence number: 100019655



# The Public Health Burden

- Air pollution is considered to be a contributory factor, rather than the sole cause of deaths of individuals
- It is unlike smoking and alcohol, for which some deaths can be entirely caused by the risk factor (or there is a close link)

<b>Risk Factor</b>	<b>Annual attributable mortality in England +</b>	<b>Deaths for which the risk factor is the main cause of death</b>
Long-term exposure to particulate air pollution	25,000	Small number*
Alcohol	22,481	6,000
Smoking	79,700	43,400**

+ Attributable deaths – The number of deaths from both direct (sole) cause and for which the risk factor is a contributory factor

\* Contributory factor only

\*\* Smoking is responsible for more than three-quarters of deaths from the following conditions: cancer of the trachea, lung and bronchus; cancer of the larynx; chronic obstructive lung disease; and chronic airway obstruction

Table reproduced from [\*Public health matters: Understanding the impact of particulate air pollution\*](#)





# How can the NLES address air quality?

- There are no silver bullets when it comes to resolving air quality issues
- Intervention across a number of areas/sectors is necessary

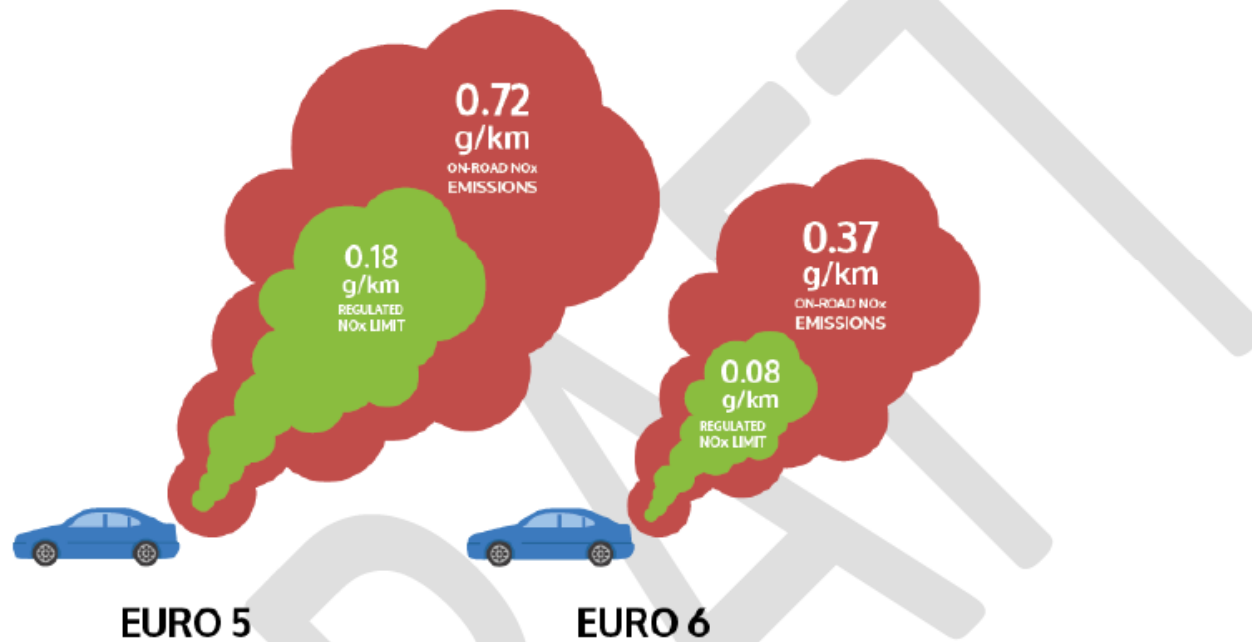
# Theme 2 – Influencing Policy, Strategies and Plans

- Guidance linked to planning – A mitigation as standard approach based on size and scale of development
- Travel Choice and Promoting Active Travel (switching to walking or cycling)
- Public Sector procurement and leading by example – scoring 3<sup>rd</sup> party suppliers with better environmental credentials
- Local Authority Fleets – leaning towards cleaner vehicles through procurement cycle renewal

# Theme 3 – Reducing Vehicle Emissions

- Private car ownership – Facilitating the shift to cleaner alternatives by –
  - Applying for government funding and support
  - Developing recharging/refuelling infrastructure
  - Awareness raising
  - Developing policy around preferential parking rates for ULEV

# Theme 3 – Reducing Vehicle Emissions



# Theme 3 – Reducing Vehicle Emissions

- Taxi and Private Hire Vehicles
  - Investigating the setting of emission standards through licensing
  - Application for funding support from OLEV to support low emission infrastructure (already submitted)
  - Demonstrations of ULEV to highlight emissions and cost benefits (whole life costing)

**Figure 10 – Total Cost of Ownership (TCO) of selected diesel, petrol, hybrid and electric cars**

Vehicle	Leaf (hatchback)	Octavia (hatchback)	Octavia (hatchback)	Prius (hatchback)
Manufacturer	Nissan	Skoda	Skoda	Toyota
Model details	80kw Visia 5dr	1.4TSI 140 SE 5dr	1.6TDI 105 S 5dr	1.8 VVT-I T3 5dr
Fuel type	Electric	Petrol injection	Diesel turbo	Petrol hybrid
Power (kw)	80	102.12	76.96	99.16
0-60mph (sec)	11.5	8.4	10.8	10.4
Euro std	NA	6	6	6
Price	£ 21,490	£ 18,860	£ 18,360	£ 21,995
3yr RV	£ 7,820	£ 7,075	£ 8,185	£ 12,665
New/used	New	New	New	New
Miles pa	25,000	25,000	25,000	25,000
mpg	NA	35	47	52.2
litres/km (kwh/km)	0.173	0.081	0.060	0.054
Tax band	A	D	A	A
Depreciation 3yrs	£ 13,670	£ 11,785	£ 10,175	£ 9,330
Tax £pa	£ -	£ 110	£ -	£ -
Fuel £pa	£ 519.00	£ 3,959	£ 3,054	£ 2,654
Servicing £pa	£ 0	£ 185	£ 179	£ 202
Nox damage £/yr	£ 0	£ 11.06	£ 80.93	£ 7.41
PM damage £/yr	£ 0	£ 17.54	£ 17.54	£ 17.54
CO2 damage £/yr	£ 144.94	£ 308.95	£ 268.16	£ 207.15
TCO for 1 yr (no depr)	£ 664	£ 4,591	£ 3,599	£ 3,089
TCO for 3 yrs inc depr	£ 15,661.82	£ 25,558.99	£ 20,973.21	£ 18,596.38



# Theme 3 – Reducing Vehicle Emissions

- Buses
  - Use of bus partnership agreement to;
    - Retro-fit older buses to improve emissions
    - Develop a bus emission standard for Northampton?

**Figure 13 – Suggested Bus Emission Standard for Northampton**

**Buses to be replaced by technologies outlined in green (in increasing order of preference)**

- Electric or Fuel Cell
- Natural Gas (CNG or bio-CNG)
- Euro VI Diesel Electric Hybrid
- Euro VI Diesel



**Existing buses to be retrofitted as outlined in orange**

- Euro V Diesel with thermally effective NO<sub>x</sub> catalyst if needed
- Euro IV Diesel with DPF and NO<sub>x</sub> catalyst
- Euro III Diesel with DPF and NO<sub>x</sub> catalyst
- Euro II Diesel with DPF and NO<sub>x</sub> catalyst

**Bus technologies not considered suitable for use in the AQMAs**

- Euro IV Diesel (without SCR or DPF)
- Euro III Standard Diesel
- Euro II Standard Diesel

# Theme 3 – Reducing Vehicle Emissions

- Commercial Vehicles and Freight
  - Difficult to directly influence (procurement is a commercial decision)
  - Location of alternative re-fuelling stations (in conjunction with buses?)
  - Working with operators to consider whole life costing
  - Use of planning guidance so new development introduces low emission vehicles/infrastructure
  - Use of fleet operators recognition scheme to reward businesses that have a lesser environmental impact
  - Encourage transport by rail for longer journeys

# Summary

- The local authority has a legal obligation towards air quality and must produce an action plan
- The Council can influence some areas linked to air quality (planning & taxi licensing), but many issues are outside direct control and will require goodwill and enthusiasm to influence external 3<sup>rd</sup> parties.
- Measures to improve air quality need to be taken in conjunction as isolated actions are unlikely to be sufficient on their own.