



The Low Emission Zone

Transport for London



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Rome, 24 June 2010



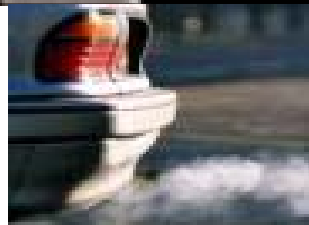


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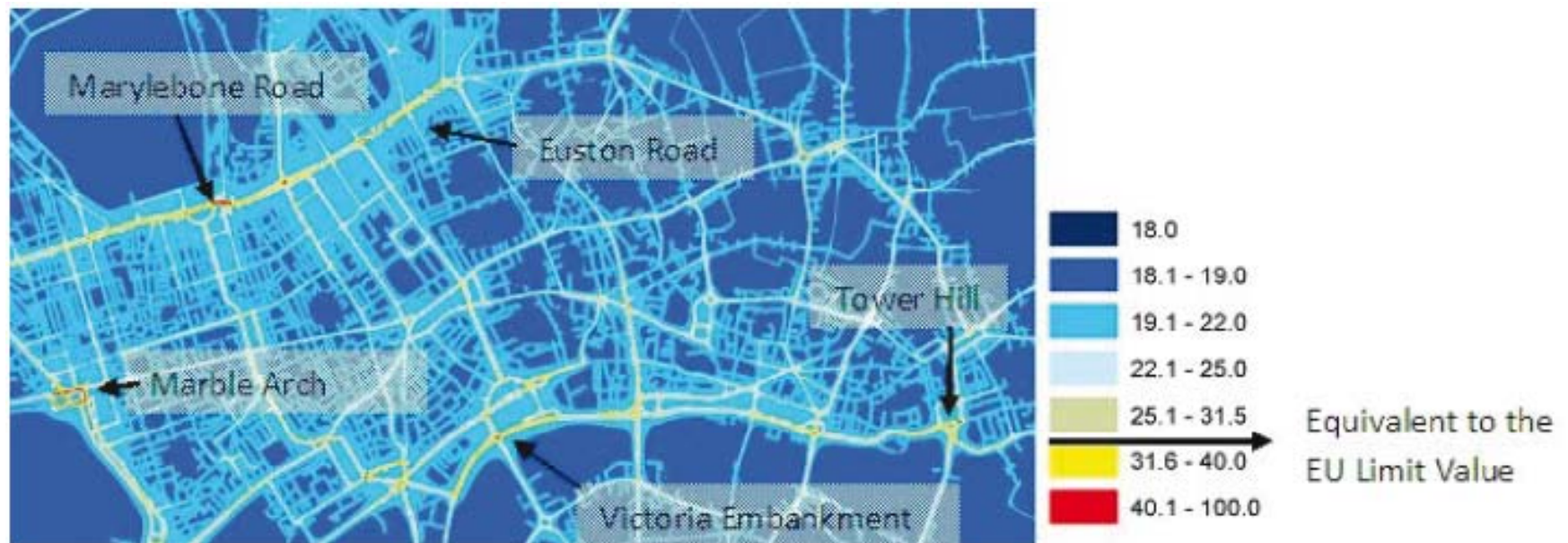
Air Quality in London



- A House of Commons environmental audit committee said that particle pollution has claimed the lives of over 4,300 people a year in London and has an annual cost of around £2bn.
- Affects most vulnerable parts of society
- The Mayor of London is legally obliged to work towards the UK Government's air quality objectives, who in turn are committed to meeting limit values set out in European Union legislation.
- Air quality in London currently exceeds EU limit values for Particulate Matter (PM₁₀) and Nitrogen Dioxide (NO₂)
- Road traffic major source of emissions

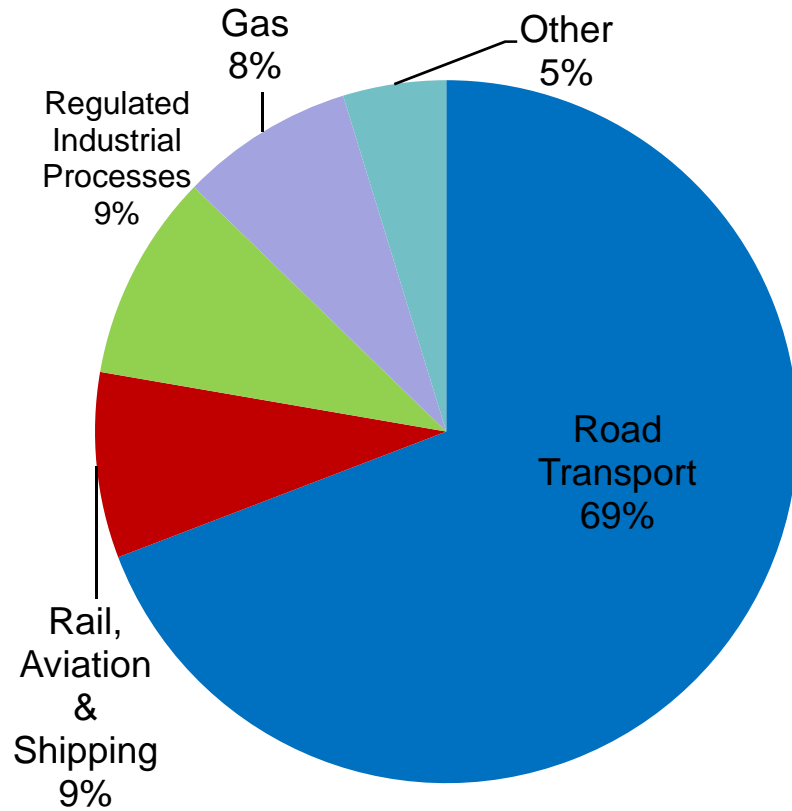


Modelled PM₁₀ exceedences of EU Limit Value in 2011

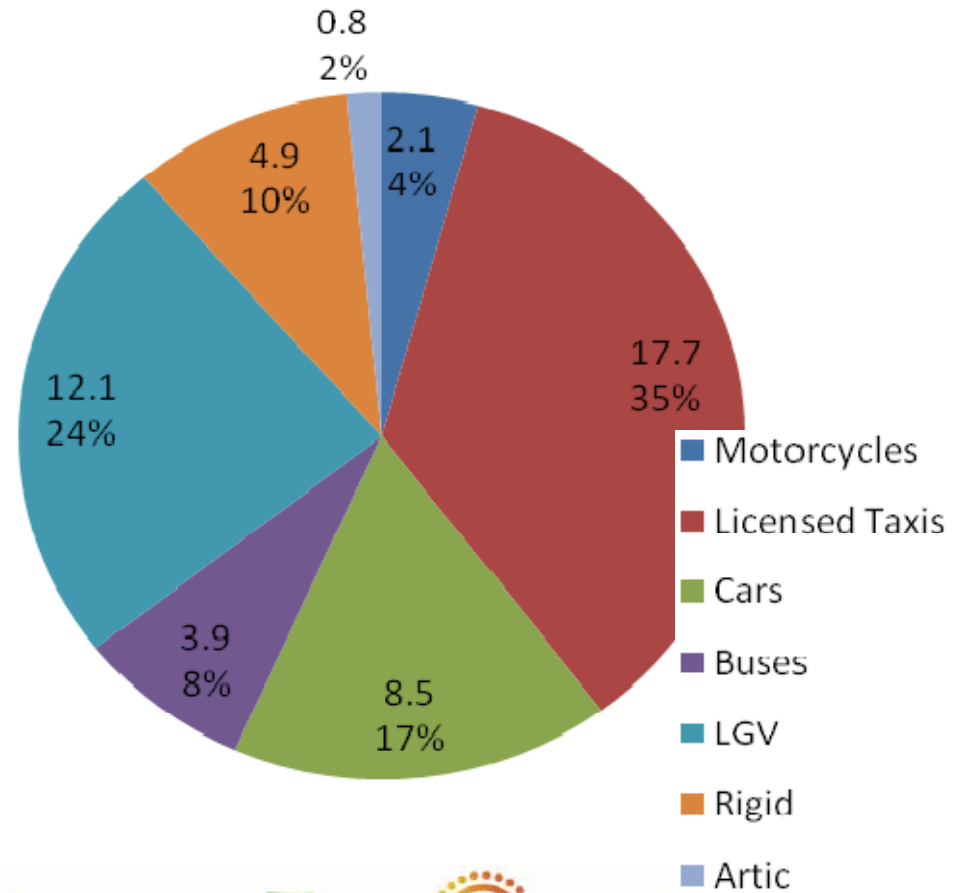


Estimated Contributions of Road Transport PM

PM₁₀



2011, Central London, Exhaust PM



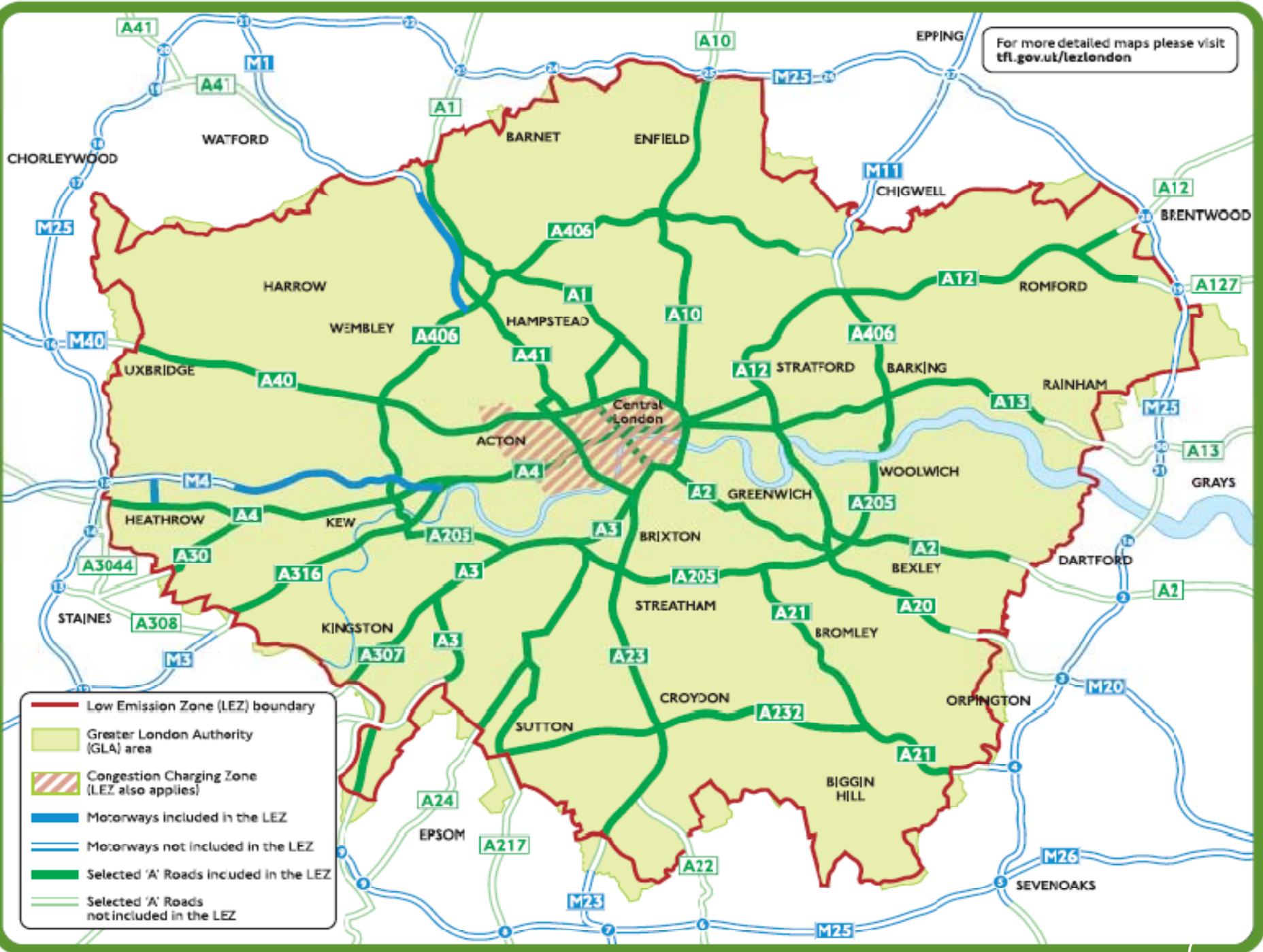


What is the London Low Emission Zone?

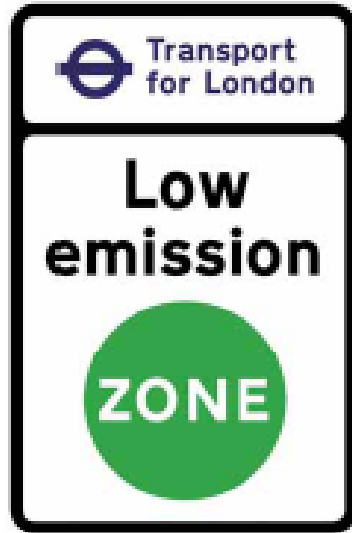
- Environmental zone covering 1580 square kilometres
- Discourages the most individually polluting vehicles from being driven in London
- Requires heaviest diesel-engine vehicles to meet strict emissions standards to drive within London
- Operates 24 hours a day, 365 days per year
- The LEZ does not ban vehicles from London, non-compliant vehicles can pay a charge



For more detailed maps please visit tfl.gov.uk/lezlondon



How LEZ operates



- The LEZ is a charging scheme – but most avoid paying the charge by driving a compliant vehicle.
- There is signs at entry points and in the zone
- Vehicles which are subject to the LEZ are detected using fixed and mobile cameras using automated number plate recognition
- TfL checks vehicle registration against a register of compliant vehicles
- Non compliant vehicles have to pay a daily charge
£200 per day for HGV, buses and coaches
£100 per day for vans and minibuses



Vehicles Affected by the LEZ

LEZ Phase 1	Heavy Lorries >12T 	February 2008 Euro III PM	30,000 were non-compliant in 2007
LEZ Phase 2	Lighter Lorries >3.5T  Buses and coaches >5T 	July 2008 Euro III PM	35,000 were non-compliant in 2007.
LEZ Phase 3	Larger vans and minibuses  	Jan 2012* Euro 3 PM	Circa 90,000 non-compliant in 2012
LEZ Phase 4	Lorries, Buses and coaches   	Jan 2012 Euro IV PM	Circa 75,000 non-compliant in 2012
LEZ Phase 5	Lorries, Buses and coaches   	2015* Euro IV NOx	TBC

*Subject to Consultation



Options for Compliance

Options available to operators include:

- Reorganising fleet so only compliant vehicles travel in zone
- Buying a new or compliant second-hand vehicle
- Fitting an approved abatement device
- Fitting a new compliant engine in the vehicle
- Or paying the daily charge (online, by phone or post)

Operators driving a non-complaint vehicle without paying the daily charge risk a Penalty Charge Notice



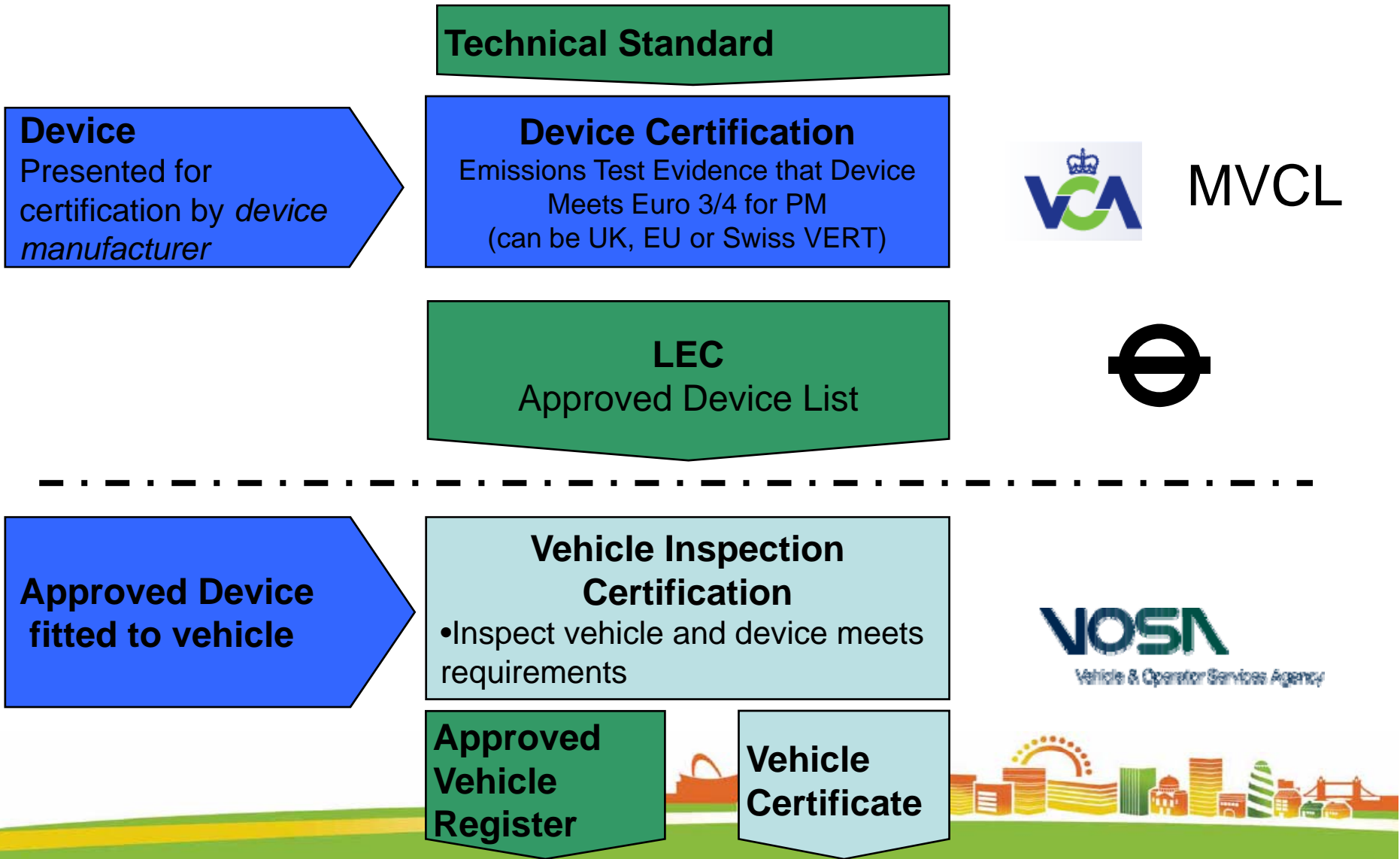


Retrofit Abatement Equipment

- TfL developed a LEC accreditation process to approve retrofit abatement equipment
- After-treatment (DPF) tested on either ETC (alt. FiGE) or Type I cycles according to worst case test protocols
- Swiss VERT test evidence utilised for most full flow DPF approvals
- Accreditation undertaken on behalf of TfL by an independent certification body, either:
 - Vehicle Certification Agency, or
 - Matthew Vincent Consulting Ltd
- Approx 10,000 of the 65,000 non-compliant Phase 1 & 2 vehicles retrofitted



Certification of Abatement Equipment

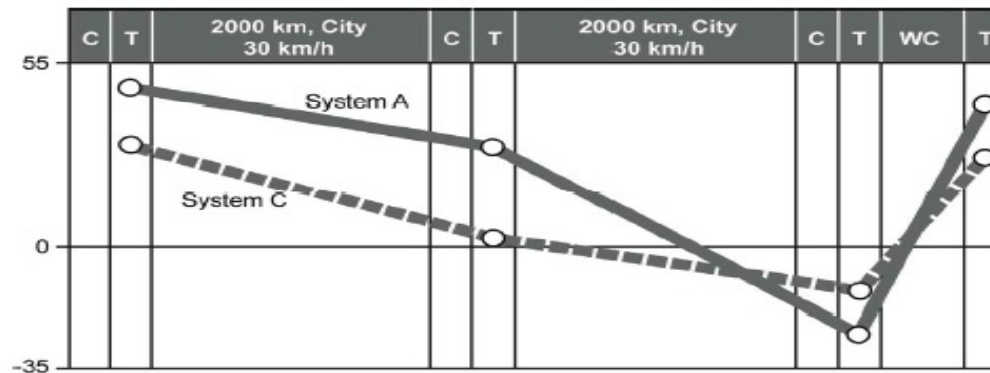


Proposed changes to the technical standard for Phases 3&4...

Partial Filters excluded

Reason for change

There is increasing evidence from a number of European member states that partial filters are ineffective in service and under certain conditions lead to a negative PM reduction, i.e act as a store and release device.



Currently consulting with Industry on new clause added to the technical standard
'Where the adaptation uses exhaust filtration as a means of particulate reduction the entire exhaust aerosol must be filtered under all operating conditions. No circumstance likely to result in emission of exhaust gas without the required particulate reduction will be accepted'



Proposed changes to the technical standard for Phases 3&4...

NO₂ Limits Set

Reason for change

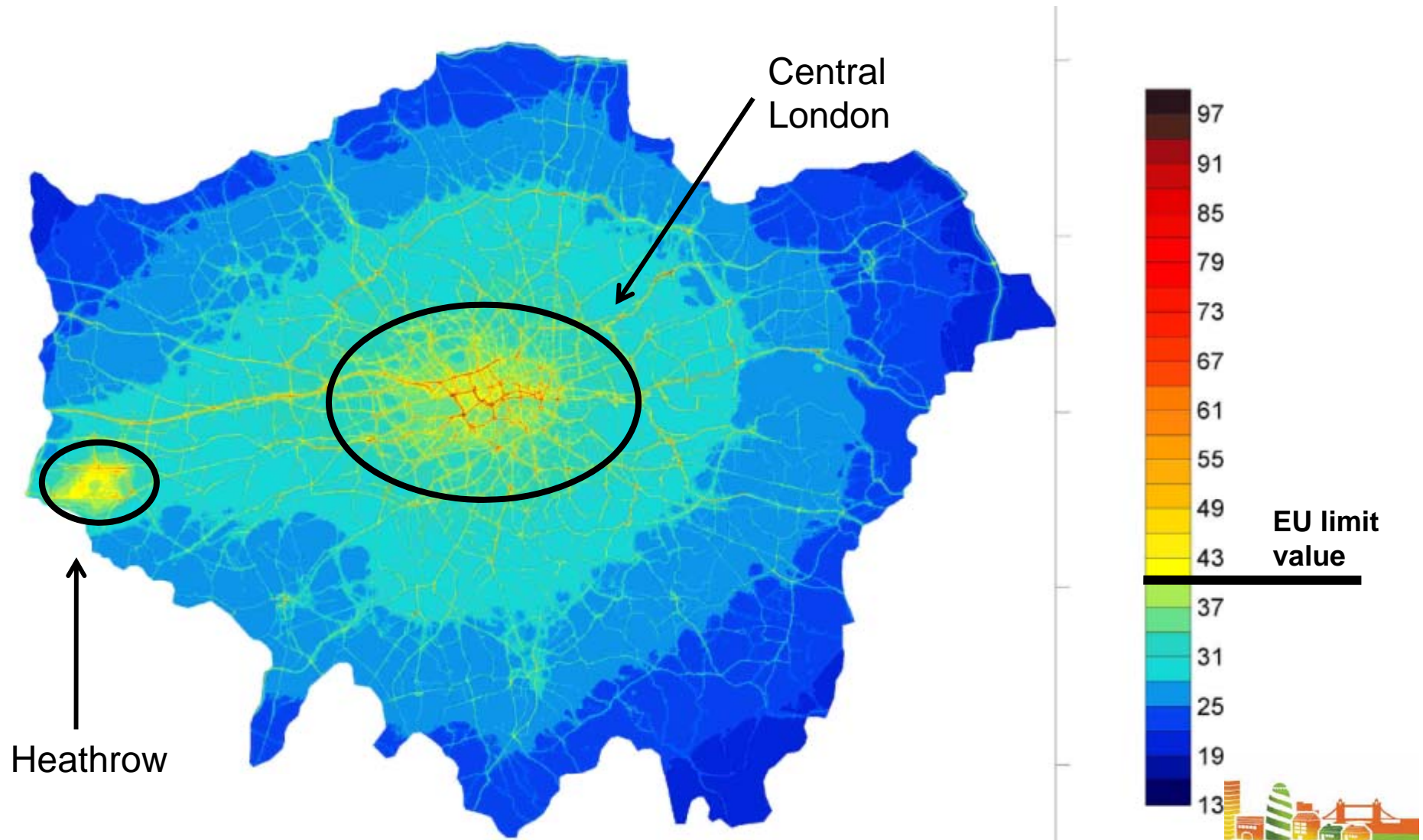
- London is in breach of the statutory (EU and UK Law) air quality limit with regard to levels of NO₂.
- Some Diesel Particulate Filters (DPFs) approved under the current technical standard increase emissions of NO₂ and therefore contribute to NO₂ exceedences in London.

Currently consulting with Industry on new clause added to the technical standard

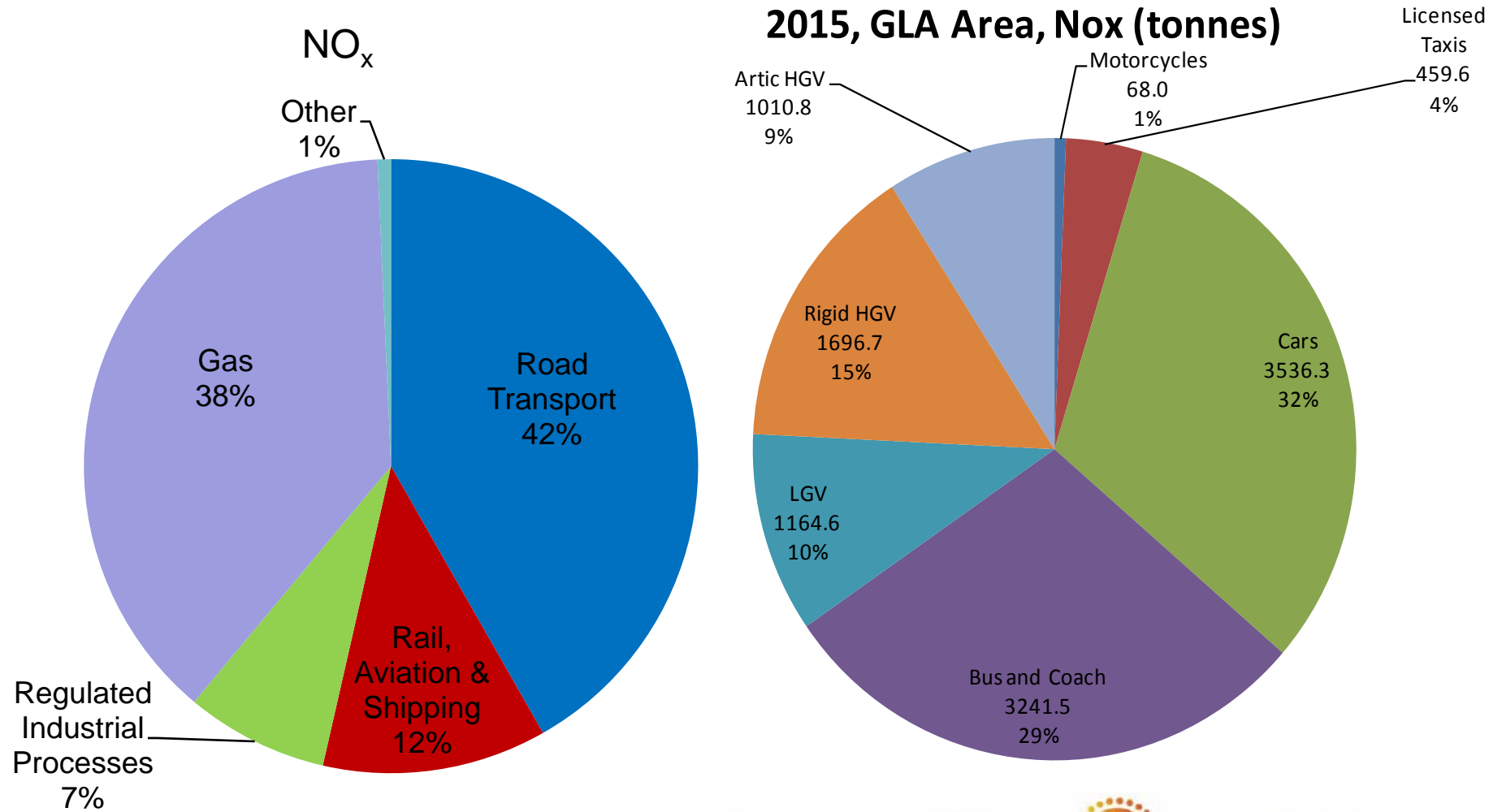
'The NO₂ incremental increase shall not be more than xx percentage points greater than the level recorded when no adaptation device is fitted (baseline)'



NO₂ exceedences of EU Limit Value in 2015



Modelled Road Transport Sources of NO_x Emissions in London

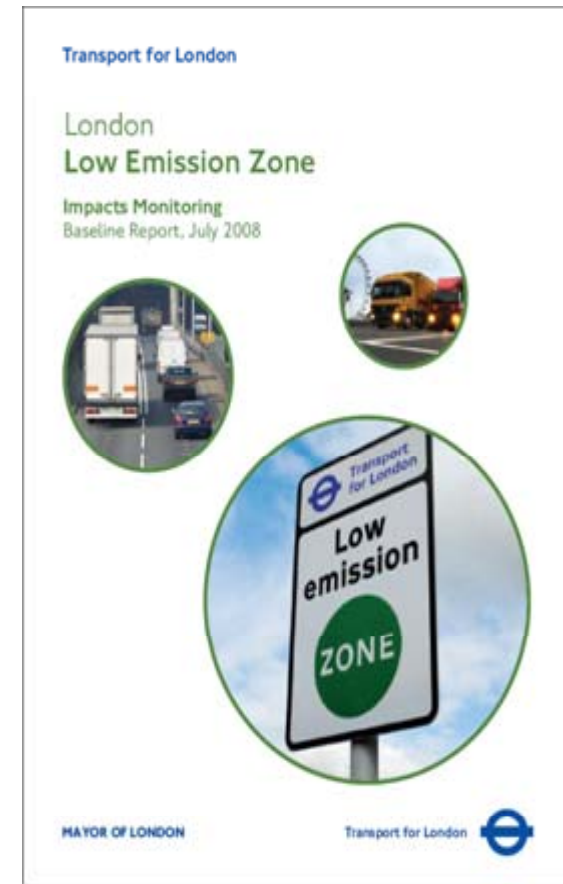


Phase 5 (2015) NO_x Certification Standard

- Proposed that Lorries buses and coaches meet minimum Euro IV for PM **and NO_x** by 2015
- Challenges in developing the technical standard to ensure in-use compliance (use of urea for SCR etc)
- Secondary emissions of N₂O and ammonia also need to be carefully controlled

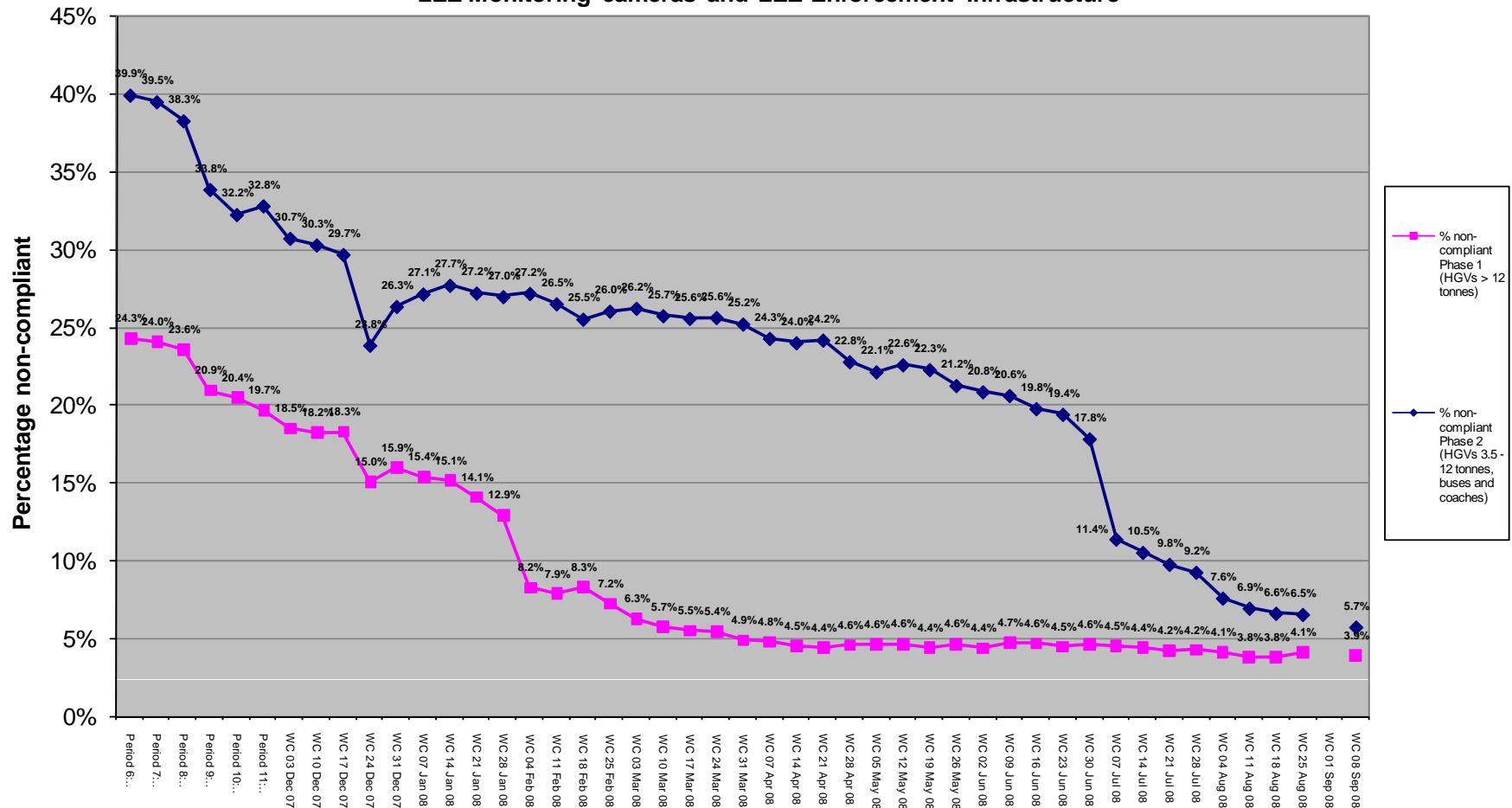
Impacts Monitoring

- The LEZ Baseline Impacts Monitoring report was published in July 2008
- Sets out the conditions prior to the start of the scheme providing a baseline against which the scheme impacts can be analysed. It includes:
 - Measurement of the change in vehicle characteristics using cameras
 - Use of established London Atmospheric Emissions Inventory and AQ model to cover vehicle changes and to calculate emissions / AQ impacts
- Report on Phases 1 & 2 impacts due out late 2010



Compliance rates

Phase 1 and 2 non-compliant trends
LEZ Monitoring cameras and LEZ Enforcement infrastructure





What will the LEZ achieve?

Health impacts

- The LEZ will improve the health of many people who live, work and visit London:
 - Defra estimates that up to 5362 years of life expectancy lost across London would be gained.
 - EU Café estimates that the LEZ will bring:
 - 350,000 fewer cases of lesser respiratory symptoms
 - 34,000 fewer cases of respiratory medication use
 - 256,000 fewer restricted activity days.

“Any initiative which reduces harmful emissions for Londoners is a positive step forward... Improving the air we breathe should mean fewer premature deaths, reduced hospital visits, and fewer GP consultations for people with respiratory disease.”

Dr Keith Prowse, Chairman of British Lung Foundation





www.tfl.gov.uk/lez

