LONDON’S AIR QUALITY AND TRANSPORT EMISSIONS

Oliver Lord
Deputy Air Quality Manager

MAYOR OF LONDON
NEW STRATEGIES

Sadiq Khan
Mayor of London
'Oxford Street pollution levels breached EU annual limit just four days into 2015'
Putney High Street breaches annual diesel pollution limit eight days into 2016

JONATHAN PRYNN  |  4 hours ago  |  32 comments
Pollution limit hit on Brixton Road just 120 hours into the New Year
Want to find out how toxic your air is? Ask me. A pigeon. Tweet just your London area to @PigeonAir #PigeonAir
NO$_2$ CHALLENGE (2025)
PARTICULATE MATTER – NON-EXHAUST EMISSIONS

Vehicle type

Motorcycle  Car  Taxi  LGV  HGV  Bus and Coach  TOTAL

Percentage of PM$_{10}$ emissions

Exhaust  Tyre and brake wear
HEALTH AND EQUALITIES

- Death
- Hospital Admissions
- Doctor visits
- Asthma attacks, medication use, symptoms
- Lung function changes, immune cell responses, heart rate or heart rate variability responses

Severity of health effect

Proportion of population affected
OUR OBJECTIVES

• Reducing exposure of Londoners to harmful pollution across London – especially at priority locations like schools – and tackling health inequality;

• Achieving legal compliance with UK and EU limits as soon as possible, including by mobilising action from the London boroughs, government and other partners;

• Establishing and achieving new, tighter air quality targets for a cleaner London, meeting World Health Organisation (WHO) health-based guidelines by 2030 by transitioning to a zero emission London.
NOx EMISSIONS (2013)

- Road transport: 50%
  - Aviation: 8%
  - Gas - Domestic: 12%
  - Gas - Non-Domestic: 8%
  - Industry: 7%
  - Non Road Mobile Machinery: 7%
  - Rail: 3%
  - River: 1%
  - Resuspension: <1%

- Other: 1%
- Domestic and Commercial other Fuels: 3%
- Non Road Mobile Machinery: 7%
- Taxi: 2%
- TfL Bus: 10%
- HGV: 11%
- Non-TfL Bus and Coach: 3%
- Van and Minibus: 6%
- Petrol Car: 6%
- Motorcycle: <1%
DIESELISATION

Source: SMMT

Number of new cars registered in 2016

Year


Petrol
Diesel

Source: SMMT
DIESEL PERFORMANCE

- Euro 3
  - 2000
  - On-road measured value (Carslaw, 2011) / (ICCT, 2014)
  - Euro emission limit

- Euro 4
  - 2005

- Euro 5
  - 2009

- Euro 6
  - 2014
  - On-road measured value (Carslaw, 2011) / (ICCT, 2014)
  - Euro emission limit
‘BENDING THE RULES’…

Source: Explaining road transport emissions, EEA
LOW EMISSION ZONE

• Started in 2008 to target oldest and most polluting HGVs, buses and coaches
• Covers the whole of Greater London (1,580 km$^2$) operates 24/7, 365 days pa.
• Daily charge £100 – £200
• Compliance with current standards high at around 96 per cent for lorries, buses and coaches, and 98 per cent for vans and minibuses.
• Helped reduce PM emissions.
During and on the day before high and very high air pollution days, air quality alerts will be displayed at:

- 2,500 bus countdown signs and river pier signs.
- 140 road signs, with instructions to switch engines off when stationary to reduce emissions.
- The entrance of all 270 London Underground stations.
SCHOOL AUDITS

- We have identified that 360 primary schools are currently located in areas exceeding legal pollution limits.
- The Mayor has completed ‘air quality’ audits at 50 schools that will identify new measures to protect pupils from toxic air.
T-CHARGE

• A new T-charge started on 23 October 2017.
  – £10 charge during Congestion Charge hours for older polluting vehicles
  – On top of existing £11.50 Congestion Charge
  – For pre-Euro 4/VI – toughest standard of any world city.
LOW EMISSION BUS ZONES
ULTRA LOW EMISSION ZONE

- Euro 4 petrol (<13-14yrs old in 2020)...or £12.50 a day
- Euro 6 diesel (<4-5yrs old in 2020)...or £12.50 a day
- Euro 3 (<13yrs old in 2020)...or £12.50 a day
- Euro VI (<6yrs old in 2020)...or £100 a day

Exempt but new licensing requirements
ROAD CHARGING

Stay in non-compliant vehicle | Buy compliant vehicle

The value (cost) per day of a compliant vehicle will always be higher than a non-compliant vehicle.

Adding a daily charge to the non-compliant vehicle increases the cost per day of the non-compliant vehicle.

...so that for frequent users it becomes cost effective to buy a compliant vehicle.
## IMPACT OF THE ULEZ

### Area

<table>
<thead>
<tr>
<th>Area</th>
<th>Proportion of population living in areas of NO₂ exceedence in 2020</th>
<th>Without ULEZ</th>
<th>With ULEZ</th>
</tr>
</thead>
<tbody>
<tr>
<td>ULEZ</td>
<td></td>
<td>63%</td>
<td>16%</td>
</tr>
<tr>
<td>Inner London</td>
<td></td>
<td>13%</td>
<td>6%</td>
</tr>
<tr>
<td>Outer London</td>
<td></td>
<td>2%</td>
<td>1%</td>
</tr>
<tr>
<td>Greater London</td>
<td></td>
<td>7%</td>
<td>3%</td>
</tr>
</tbody>
</table>

**Note:** The images depict the proportion of the population living in areas of NO₂ exceedence in 2020 both with and without the ULEZ.
NEW ULEZ PROPOSALS

Central London ULEZ in 2019 (all vehicles)
- £12.50 per day

London-wide ULEZ in 2020 (heavy vehicles)
- Up to £100 per day

Inner London ULEZ in 2021 (all vehicles)
- Up to £100 per day
- Up to £12.50 per day

ULEZ standards
- Petrol: Euro 4
- Diesel: Euro 6
- Motorcycle and L-Cat: Euro 3
WE CAN GET MORE EFFICIENT...

Source: Explaining road transport emissions, EEA
New double decks will be hybrid, hydrogen or electric from 2018; new single decks will be zero exhaust emission from 2020

Target: Zero emission bus fleet by 2037 at the latest
ZERO EMISSION VEHICLES

• New requirements for GLA fleets such as the Fire Brigade and Police force

• ‘ULEV only’ streets being brought in this year

• Zero Emission Zones to be introduced in town centres from 2020 and in central London from 2025
No more diesel taxis from 2018 and new taxis will need to be zero emission capable

Target: Zero emission capable taxi fleet by 2033 at the latest
A variety of different infrastructure solutions are needed to support the uptake of electric vehicles:

- On-street residential charging
- Top-up/destination charging
- Rapid charging
EV INFRASTRUCTURE

On-street residential charging

Top-up/destination charging

Rapid charging

Most important for commercial vehicles such as PHVs and taxis – target is 150 by end 2018
RAPID CHARGE POINTS
RAPID CHARGE POINTS

100+ delivered
RESIDENTIAL CHARGING?
EV INFRASTRUCTURE TASKFORCE

• Mayor to launch a new cross industry ‘Taskforce’ end of this month including government, car industry, energy industry, business community etc
  – Develop a shared delivery plan to enable expansion of London’s EV infrastructure;
  – Identify financing solutions and business models and where limited public sector funds can have the most impact;
  – Agree a set of commitments to be delivered by key players in the industry to pioneer and champion delivery;
  – Clarify the role of government, including legislation.
OUR GOALS

• London to have the best air quality of any major world city by 2050, going beyond the legal requirements to protect human health and minimise inequalities and;

• London to be a zero carbon city by 2050, with energy efficient buildings, clean transport and clean energy.

• Deliver policies that support phasing out fossil fuels, especially diesel, and encourage take up of zero emission vehicles.
@ldn_environment

www.london.gov.uk/environment-newsletter
Some useful links

https://www.london.gov.uk/what-we-do/transport/our-vision-transport/mayors-transport-strategy-2018


http://www.transportenvironment.org/sites/te/files/publications/Dont_Breathe_Here_exec_summary_FINAL.pdfl