Innovation in London

Policy approaches to mobility management and sustainable travel

Transport for London
Introduction

Nick Aldworth
General Manager – Barclays Cycle Hire

Previously (2005 – present):

Project Manager
Barclays Cycle Hire

Project Manager
London Low Emission Zone

Programme Manager
Congestion Charging
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Congestion Charging
Congestion Charging

- Monday – Friday, 7am – 6pm
- £10 on the day of travel
- £12 on the charging day after travel
- £9 for customers on CC Auto Pay
- Daily, weekly, monthly or annual payment for individual vehicle registration number
Exempt and 100% discount currently account for c.30% of the total daily traffic of 180,000

Key exemptions and discounts

- Buses, coaches and minibuses
- Taxis and licensed minicabs
- Motorbikes / mopeds
- Military vehicles
- Emergency services
- Disabled persons
- NHS reimbursement
- Greener vehicle discount
- Breakdown and recovery vehicles
- 90% discount for residents of zone
- Blue badge discount
- Nine or more seats
- Electric Vehicle & Plug ins
Average Daily Traffic in Zone

* During charging hours (07.00-18.00)
Congestion levels in charging zone

* Moving car observer surveys - during charging hours (07.00-18.00)
The London Low Emission Zone
The London Low Emission Zone

• Environmental zone covering Greater London (1580 square kilometres)

• Encourages the most individually polluting vehicles driving in London to become cleaner

• Operates 24 hours a day, every day of the year

• Introduced in 2008 following extensive consultation and has been very successful so far but now needs to go further

• To improve air quality: the scheme is absolutely critical and targets only the oldest and dirtiest vehicles.
The London Low Emission Zone

PM$_{10}$ Pollution in London

- The EU limit values for PM$_{10}$ are measured in terms of air quality concentrations which must not be exceeded.
- In 2011 all of the sites that are predicted to exceed are situated in London, where road transport contributes a disproportionate amount to concentrations of PM$_{10}$ pollutants.

Note: the EU limit values are also exceeded in other areas of London.

Diagram showing sources of PM$_{10}$ pollution with:
- London Traffic: 37%
- Pollution from outside London: 47%
- General London Industry: 2%
- General London other: 15%
## Vehicles Affected by the LEZ

<table>
<thead>
<tr>
<th>Vehicle type</th>
<th>Euro standards</th>
<th>Vehicle weight</th>
<th>Includes</th>
</tr>
</thead>
<tbody>
<tr>
<td>HGVs &gt;12t</td>
<td>Feb 2008 Euro III</td>
<td>Heavy diesel-engined vehicles &gt;12 tonnes</td>
<td>Goods Vehicles</td>
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<tr>
<td></td>
<td>Jan 2012 Euro IV</td>
<td></td>
<td>Motor Caravans</td>
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<td></td>
<td>Motorised Horseboxes</td>
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<tr>
<td>HGVs 3.5t &gt; 12t</td>
<td>July 2008 Euro III</td>
<td>Heavy diesel-engined vehicles between 3.5 and 12 tonnes</td>
<td>Goods Vehicles</td>
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<td></td>
<td>Jan 2012 Euro IV</td>
<td></td>
<td>Motor Caravans</td>
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<tr>
<td></td>
<td></td>
<td></td>
<td>Motorised Horseboxes</td>
</tr>
<tr>
<td>Buses &amp; Coaches</td>
<td>July 2008 Euro III</td>
<td>Heavy diesel-engined passenger vehicles &gt; 5 tonne</td>
<td>Vehicles with more than eight seats, plus the driver’s seat</td>
</tr>
<tr>
<td></td>
<td>Jan 2012 Euro IV</td>
<td></td>
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</tbody>
</table>

A proposal for a NOx standard in 2015 is currently out for consultation.
Targeting the most polluting

![Graph showing percentage compliance (unique vehicles) from 2007/08 to 2010/11. The graph compares Phase 1 and Phase 2 vehicles, with Phase 1 vehicles reaching nearly full compliance by 2009/10, while Phase 2 vehicles show a more gradual increase reaching full compliance by 2010/11.](image-url)
The London Low Emission Zone

• Since its Introduction in 2008 LEZ has had a real impact on pollution saving 28 tonnes of particulate matter which is equal to saving:
  – 127 million km driven by a ten year old large lorry
  – that is 160 return trips to the moon or
  – Approximately 677,000 times around the M25

• LEZ reduces pollution at the road side – where the pollution is heaviest and targets the kind of pollution – fine particles - which are most hazardous to health.

• The LEZ changes in 2012 will deliver around twice these reductions in air pollution - critical to London meeting EU air quality standards.

• Including larger vans and minibuses will give children with chest complaints over 12,000 days free from suffering symptoms and adults almost 18,000 days.
Bus Emission reduction

• TfL developed a ‘real world’ drive cycle based on Route 159 from Brixton to Oxford Street

• Every new type of bus is tested to ensure CO₂, PM and NOx emissions meet TfL’s requirements

• Enables TfL to model the impact of the Bus Fleet on London emissions and predict the impact of interventions
CO\textsubscript{2} impact of the bus fleet

- 6% of London’s transport CO\textsubscript{2} emissions come from buses
- Buses are largest contributor to TfL’s CO\textsubscript{2} footprint accounting for 31% of emissions
- Network consumes 250 million litres of diesel per year
- 650,000 tonnes of CO\textsubscript{2} emissions produced per annum
Initiatives to date - DPF Retrofit Programme

• TfL Retrofitted Diesel Particulate Filters on all its Euro 2 and 3 buses
• All TfL buses meet the Euro 4 standard for PM
• DPFs reduce PM by approx 90 %
• PM emissions from the fleet have dropped from over 200 tonnes in 1997 to 10 tonnes in 2008
Bus fleet emission trends 1997-2009

- PM10 - Tonnes
- CO2 - Kilotonnes
- NOx - Tonnes
Barclays Cycle Hire
Barclays Cycle Hire
Barclays Cycle Hire
Cycle Hire in context

- BCH maximum
- East London Line
- Tramlink
- London Overground
- DLR
- Underground
- Buses

Journeys per day

- BCH
- East London Line
- Tramlink
- London Overground
- DLR
- Underground
- Buses

4 million
6 million

27,000
40,000
70,000
100,000
200,000
200,000
Short to Medium Term Strategy - Hybrid Buses

Four New Hybrid Bus Types
Wright Bus, ADL, Optare, Volvo
Hybrid Trials

- The hybrid programme has spurred bus manufacturers to develop hybrid buses
- Phase 1: trial and evaluation, complete
  - 106 hybrid buses now in service from 4 manufacturers.
- Phase 2: roll-out of hybrid vehicles with
  - 300 hybrid buses in service by 2012
- Emissions testing at Millbrook showed significant reduction in fleet average hybrid emissions compared to fleet average Euro IV:
  - 30% reduction in CO2
  - 21% reduction in NOx
Clean Air Fund

The objectives of the CAF Programme are to:

• Deliver a package of short-term local measures in 2011/12 to address the risk of PM10 limit values being exceeded in London

• Provide evidence of the effectiveness of the local measures implemented (where possible)

• Increase awareness of MAQS and understanding air quality issues

• Engage with public, businesses and other key stakeholders

• Visibly deliver targeted measures
What the CAF Programme is Delivering

Green Infrastructure – planted towers, green walls and tree planting to trap PM

Diesel particulate filter fitments to buses on key routes

Marshalling at busy taxi ranks to promote greener driving techniques

Trial applications of Cleaning and Dust Suppressants to trap PM

Campaign to reduce unnecessary vehicle engine idling

Engagement with local businesses to promote sustainable travel
Clean Air Fund – Green Walls & CADS

Edgware Road Green Wall

Cleaning & Dust Suppressants
Results indicate circa 10% reduction in local PM10; supports the extended trial of CADS
The aspiration is to have

- 100,000 electric vehicles (EV) on the road as soon as possible
- A network of publicly accessible chargepoints across London
- The ultimate aim is for every Londoner to be within a one mile of an EV charge point.

Transport for London has worked with private and public partners to make this possible

- On 26 May 2011 the Mayor launched the Source London chargepoint network
- The publicly accessible chargepoints will be located at supermarkets, on the street, London Underground car parks and car parks all over London.
- Customers will then be able to charge at ANY Source London point across the city
Electric Vehicles – Source on street

There will be a phased introduction of 1,300 charge points by 2013.

We currently have over 200 charge points available for use with more on their way.

Registration costs £100 per vehicle, per year – with no additional cost for electricity.
New Bus for London
New Bus for London

- Opportunity to design a bus for London from ‘the ground up’
- Hybrid Drive-train
- Light weight composites used in key areas
- Bidders were assessed on sustainability on all aspects of vehicles life cycle – manufacturing, operation and disposal
- Requirement that vehicle achieves a re-use, recycling and recovery rate of 95 % of vehicle mass
- Emits 40% less CO2 than a conventional diesel bus and 15% less CO2 than current hybrids
- In service from 2012
Long Term Strategy - Hydrogen Buses

- Participated in Clean Urban Transport for Europe trials (CUTE)
- Eight hydrogen-powered buses in London on route RV1
- Reliable and safe but had limited range
- A viable alternative to diesel buses in London
- Designated refuelling site in Hornchurch, London
- Mayor’s Climate Change Action Plan sets target of 60% CO2 reduction across London by 2025
Impact of bus network initiatives

Hybrid roll out programme commences

-19%

-11%
Questions?