Improving air quality in London

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EVERY JOURNEY MATTERS

Media interest in air pollution is growing

Square Mile has worst levels of deadly toxic particles in capital

London Evening Standard

FleetNews

the Wharf

Residents of Tower Hamlets and Newham twice as likely to die of lung disease as affluent neighbours

CITY A.M.

The mayor said he would launch formal consultation in a matter of weeks

Khan: I'll be a breath of fresh air on beating smog in London

New London Mayor Sadiq Khan plans to tackle air quality with extended ULEZ

London Evening Standard

Established 1827

Tackle diesel pollution to clean up our air

theguardian

Mother calls for inquiry into air pollution's role in child's death

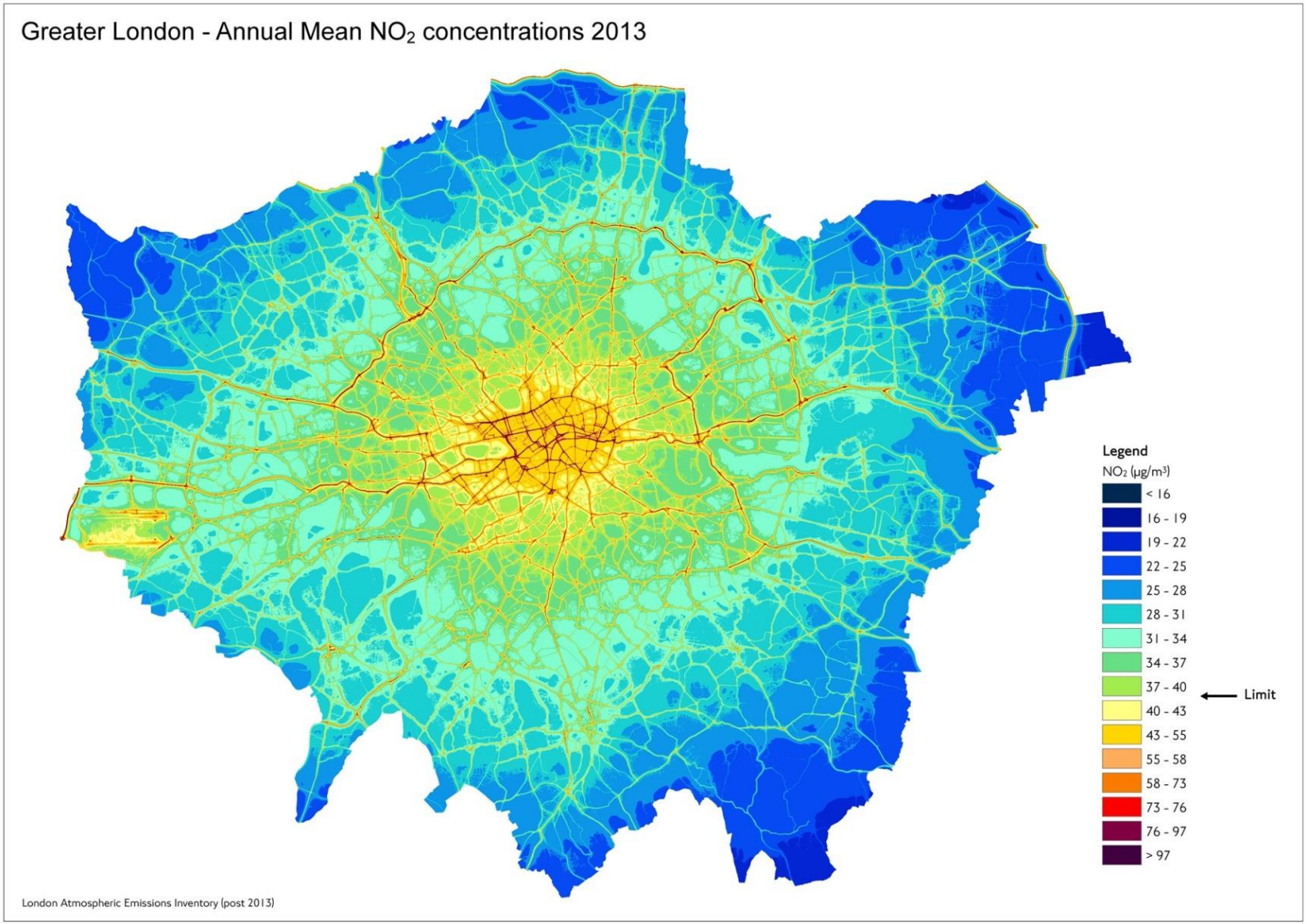
London Evening Standard

London homebuyers looking for property in areas with low pollution

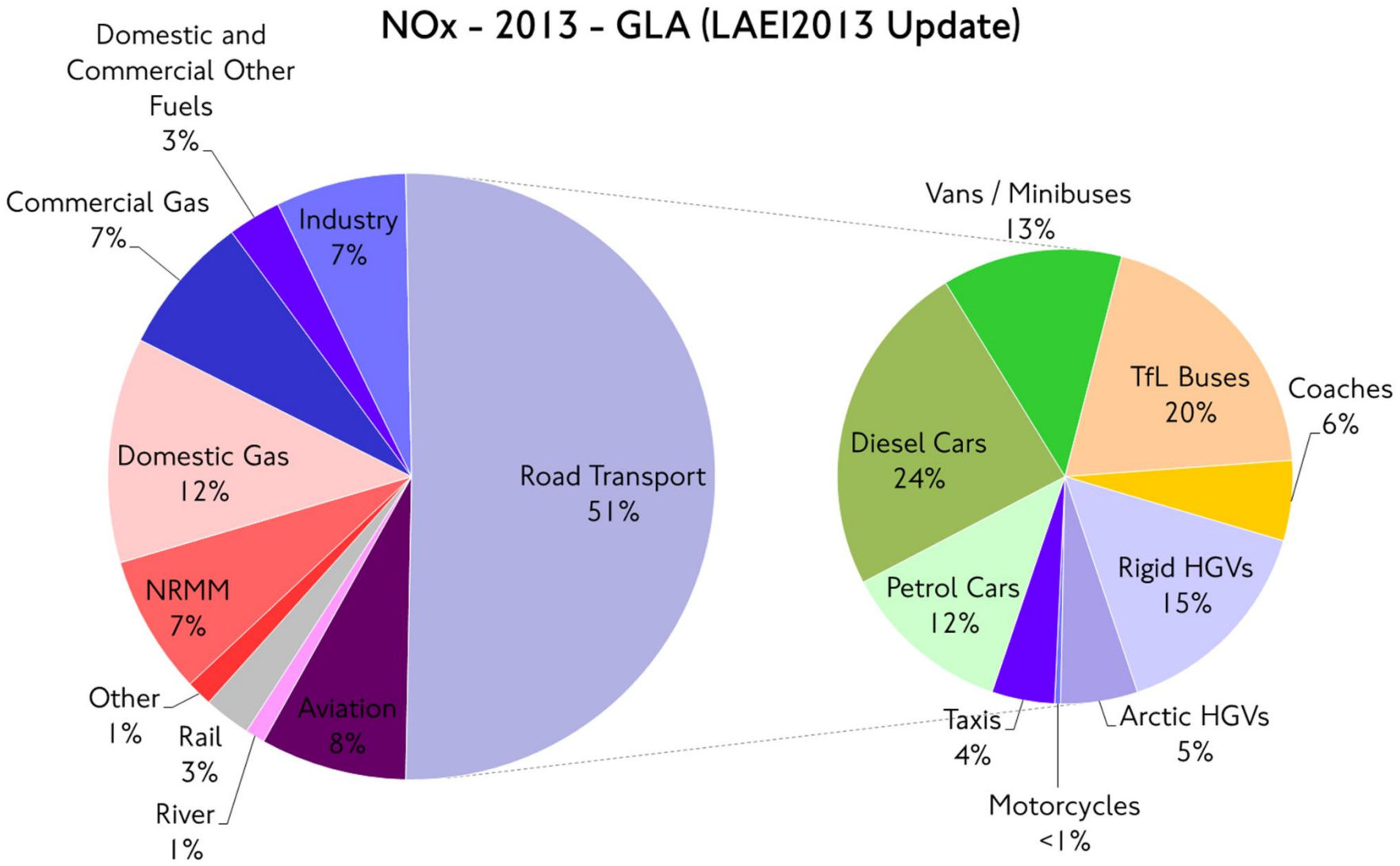
getwestlondon

'Big, bold' transport changes announced by Sadiq Khan to tackle London air pollution

Scale of air quality problem in London



Road transport is a major source of air pollution



Aim for London to have the best air quality of any world city by 2050

TRANSPORT

Strict new emission requirements across London (e.g. ULEZ, zero emission zone)

Mode shift to walking, cycling & public transport

All vehicles zero emission by 2050

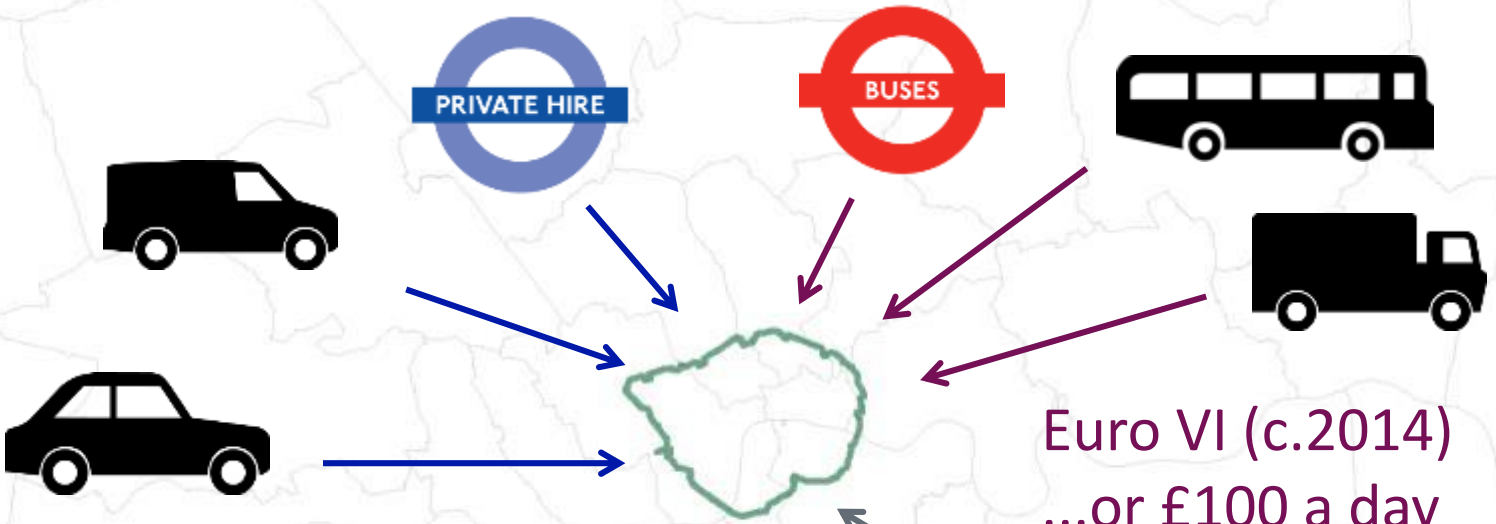
Zero emission bus fleet by 2037 and all taxis zero emission by 2033

Reduce emissions from rail, river and aviation transport

T-Charge

- Launched on 23 October 2017
- Same boundary and time as Congestion Charge
- £10 surcharge on top of Congestion Charge
- T-Charge standard is Euro 4
- Stepping stone to ULEZ

Ultra Low Emission Zone proposed for 2019



Euro 4 petrol (c.2006)
Euro 6 diesel (c.2015)

...or £12.50 a day

Euro VI (c.2014)
...or £100 a day

Euro 3 (c.2007)
...or £12.50 a day

Exempt but new licencing rules

Additional hybrid or electric standard

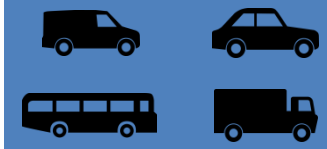
Existing situation

Note: In the hatched areas, standards indicated by both colours apply.

*Vehicle class is indicative only, additional vehicles are affected

**Minimum emissions standard is for NOx and PM unless otherwise stated

T-Charge and LEZ in operation

Vehicle class*	Min emission standard**	or	Daily Charge
	Euro 4 Euro IV		£10 (CC Hours Only)
	Euro IV PM		£200
	Euro 3 PM		£100

April 2019 – Central London ULEZ

Note: In the hatched areas, standards indicated by both colours apply.

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ULEZ replaces T-Charge. Introduction of Euro 6/VI diesel standard and change in charge and hours

Vehicle class	Min emission standard	or	Daily Charge
	Euro 3		£12.50
	Euro 4 petrol or Euro 6 diesel		£12.50
	Euro VI		£100
	Euro IV PM		£200
	Euro 3 PM		£100

October 2020 – Strengthening LEZ standards

Note: In the hatched areas, standards indicated by both colours apply.

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Euro VI standard applies London-wide for heavy vehicles

Vehicle class*	Min emission standard**	or	Daily Charge
	Euro 3		£12.50
	Euro 4 petrol or Euro 6 diesel		£12.50
	Euro VI Euro IV PM		£100 £300
	Euro 3 PM		£100

October 2021 – Expanding ULEZ

Note: In the hatched areas, standards indicated by both colours apply.

*Vehicle class is indicative only, additional vehicles are affected

**Minimum emissions standard is for NOx and PM unless otherwise stated

ULEZ expands to inner London

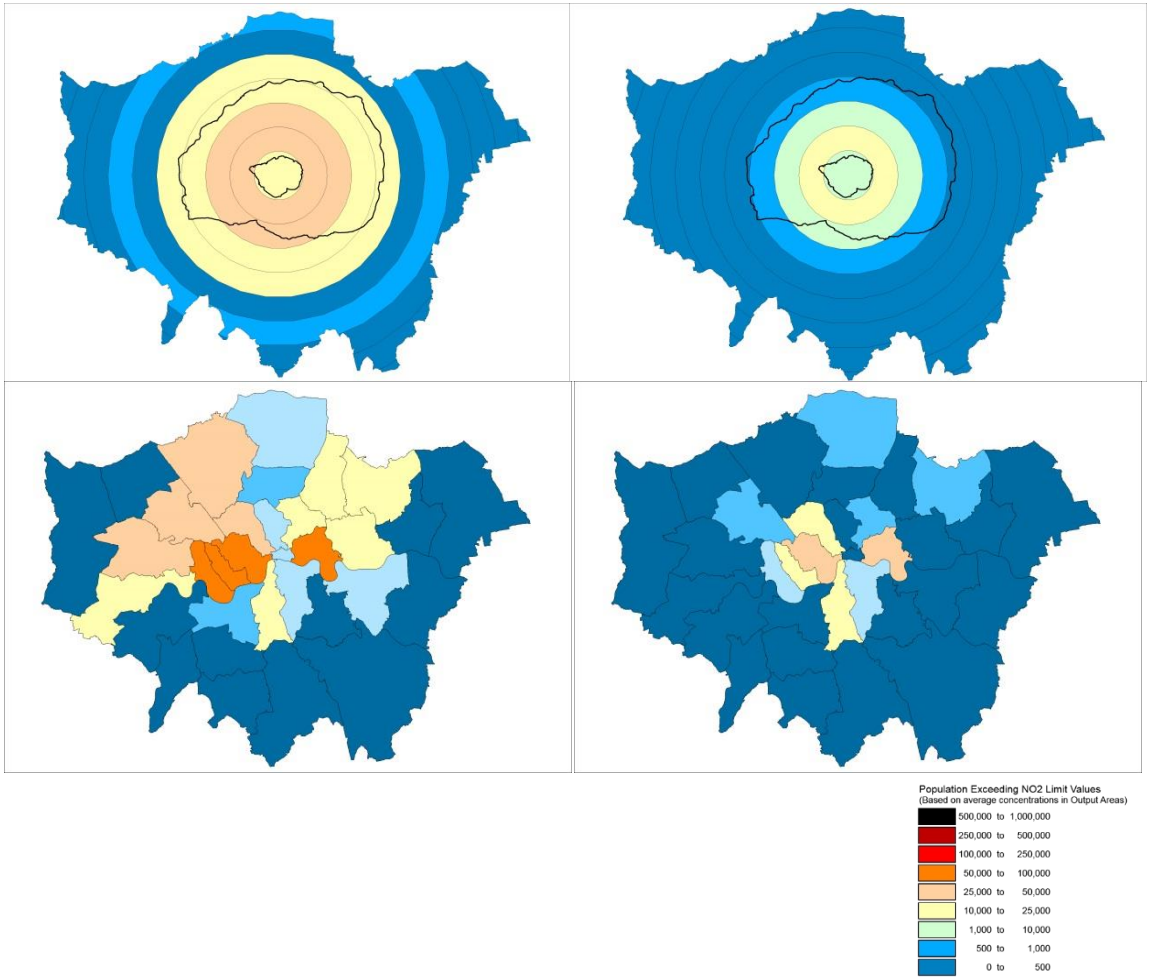
Vehicle class*	Min emission standard**	or	Daily Charge
	Euro 3		£12.50
	Euro 4 petrol or Euro 6 diesel		£12.50
	Euro VI Euro IV PM		£100 £300
	Euro 3 PM		£100

Impact on population exposure

- Over 100,000 fewer people living in areas exceeding legal NO_2 limits London-wide in 2021
- 77 per cent reduction London-wide, 96 per cent reduction in Outer London
- 71 per cent fewer schools in areas exceeding legal limits in 2021

Baseline

With proposals



TfL is using its influence to enable a switch to zero emission transport

Leading by example: All single deck buses in central London will be zero emission by 2020

Technology trials: wireless bus charging and new electric double deck buses

Funding: Supporting innovation e.g. through MAQF, NoF, LENs

Regulation: New licencing requirements for zero emission capable taxis and private hire vehicles

Infrastructure: Charge point delivery in partnership with boroughs and private sector

Stakeholder engagement: LoCITY programme helping the freight industry adopt ULEVs

Move to zero emissions zones

C40 CITIES

1.Paris
2.London
3.Los Angeles
4.Copenhagen
5.Auckland
6.Barcelona
7.Cape Town
8.Heidelberg,
9.Medellin
10.Mexico City
11.Milan
12.Oslo
13.Quito
14.Rome
15.Rotterdam
16.Seattle
17.Seoul
18.Tokyo
19.Vancouver
20.Warsaw
21.Birmingham
22.Honolulu
23.Oxford
24.Greater Manchester
25.Santa Monica
26.West Hollywood

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LAEI 2013

What it is...

- A full inventory of London's emissions, by source and locations for 2013.
- Future year emissions estimated for 2020, 2025 and 2030.
- 2008 and 2010 emissions recalculated with method updates.
- Provided inputs for London Toolkit Air Quality Model

Analytical evidence base essential for policy development and planning:

- Strategic emissions modelling
- Concentrations modelling & air quality mapping
- Hotspot identification
- Source contributions
- Vehicle Fleet Compositions
- Traffic flows and vkm
- LEGGI

Key users:

- Boroughs (LLAQM, Planning and Health)
- GLA and TfL policy and strategy development
- GLA/Defra – reporting to EC
- Consultancies, Developers (EIA & planning)
- Public Information systems (Kings – Nowcast, Cleaner Air For London)

Overview of modelling process

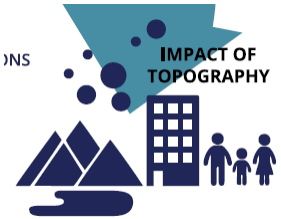
Vehicle counts, speed, age

Other transport

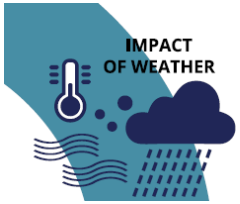
Non-transport sources

→ LAEI emissions inventory

+



Weather



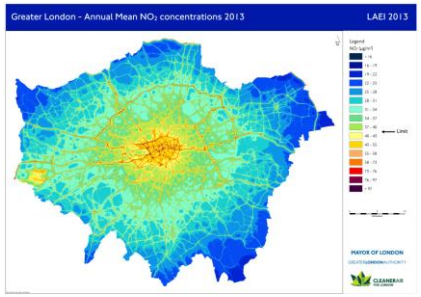
Topography

→

Validation

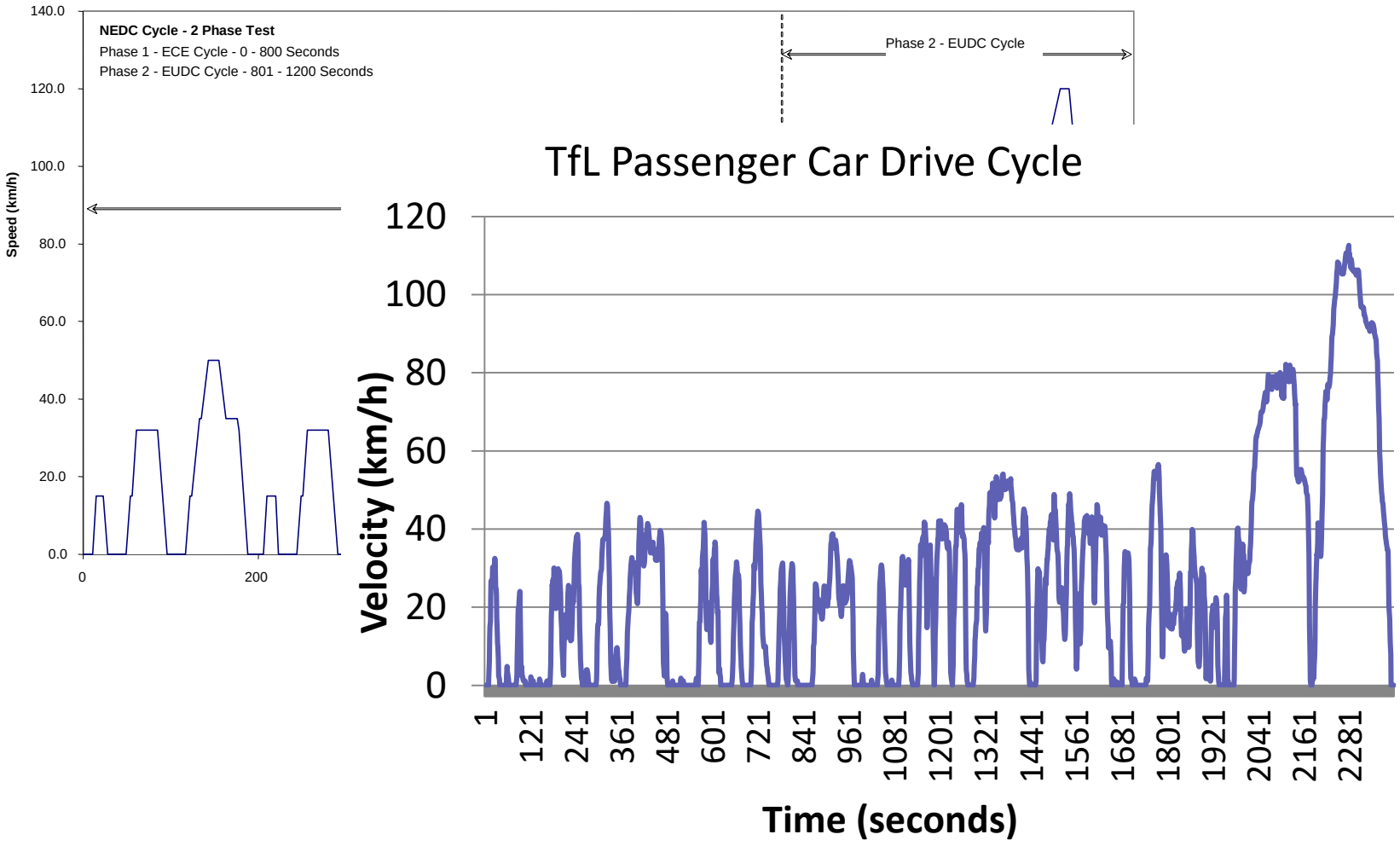
↓

Concentrations



We have been testing the effectiveness of Euro 6/VI

New European Drive Cycle (NEDC)



Emissions based charging schemes – T-Charge and ULEZ

- Schemes where vehicles must meet minimum emissions standard or pay a daily charge

2017

T-Charge and LEZ

Vehicle class*	Min emission standard**	or Daily Charge
	Euro 4 Euro IV	£10 (CC Hours Only)
	Euro IV PM	£200
	Euro 3 PM	£100

- The Low Emission Zone (LEZ)
  - operates London-wide, 24/7
  - Since 2008, tightened 2012
  - Has saved 28t of particulate matter
- The T-Charge
  - covers the CC zone and hours
  - A 28 percent reduction in non-compliant vehicles entering the CCZ

2019 - Confirmed

ULEZ replaces T-Charge. Introduction of Euro 6/VI diesel standard and change in charge and hours

Vehicle class*	Min emission standard**	or Daily Charge
	Euro 3	£12.50
	Euro 4 petrol or Euro 6 diesel	£12.50
	Euro VI	£100
	Euro IV PM	£200
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- In 2019 the Ultra Low Emission Zone (ULEZ) will replace the T-Charge in central London and operate 24/7
- Expected to save 20 percent of road transport NOx in 2019 in central London

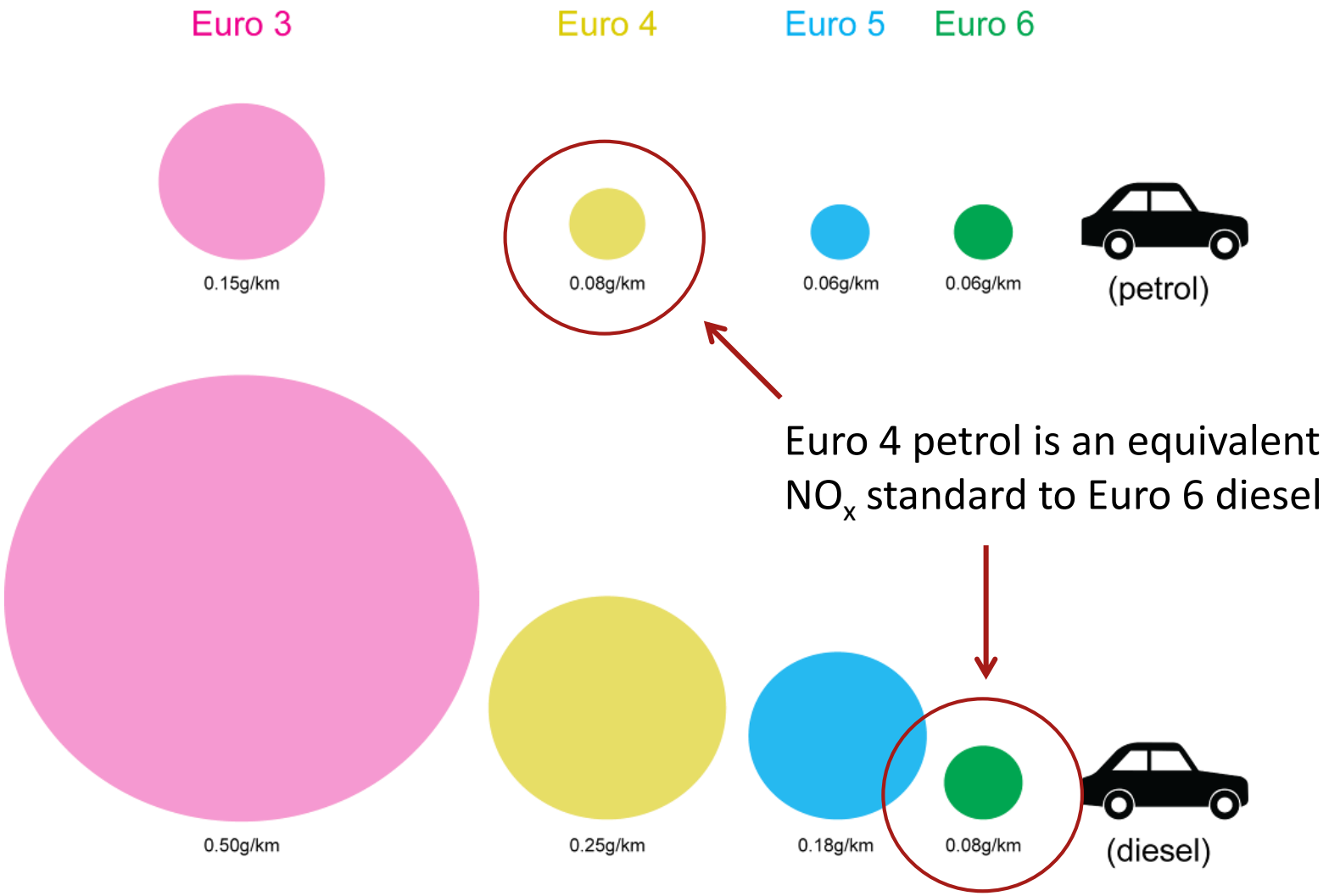
The ULEZ is designed to ‘clean up’ diesel and petrol

- When setting the emissions standards, we had to consider the number of vehicles that would need to upgrade and the likely technological solutions.
- A lot of vehicles enter central London over any given year:

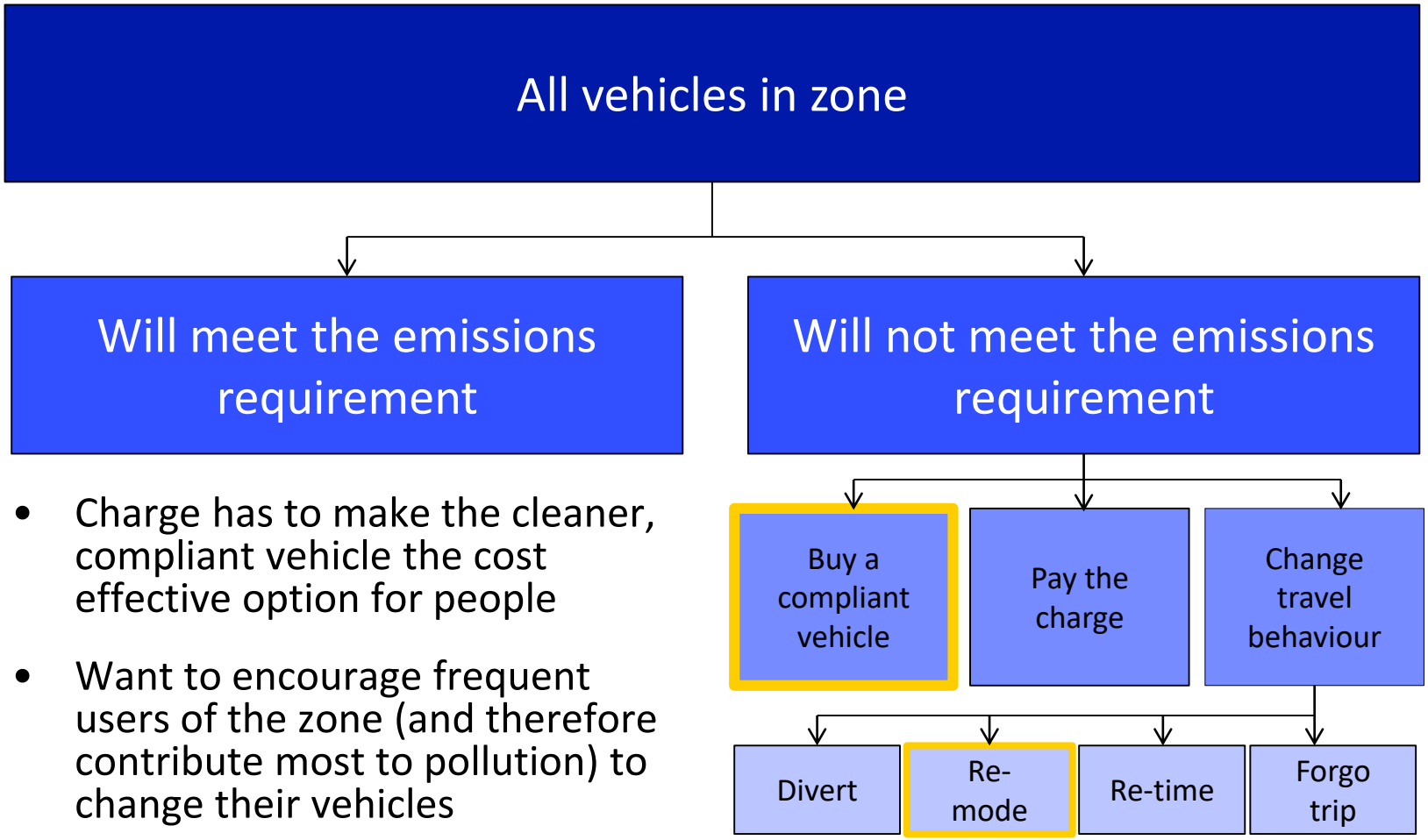
5,000,000	40,000	660,000	118,000

- The Government currently estimated there would be around 110,000 plug-in cars registered in the UK by 2020.
- This meant it would be difficult to set a ‘non ICE’ standard in 2020.
- Therefore, our starting point was to ensure the petrol / diesel fleet is as clean as possible

Understanding how polluting different vehicle types are: legislated emissions standards

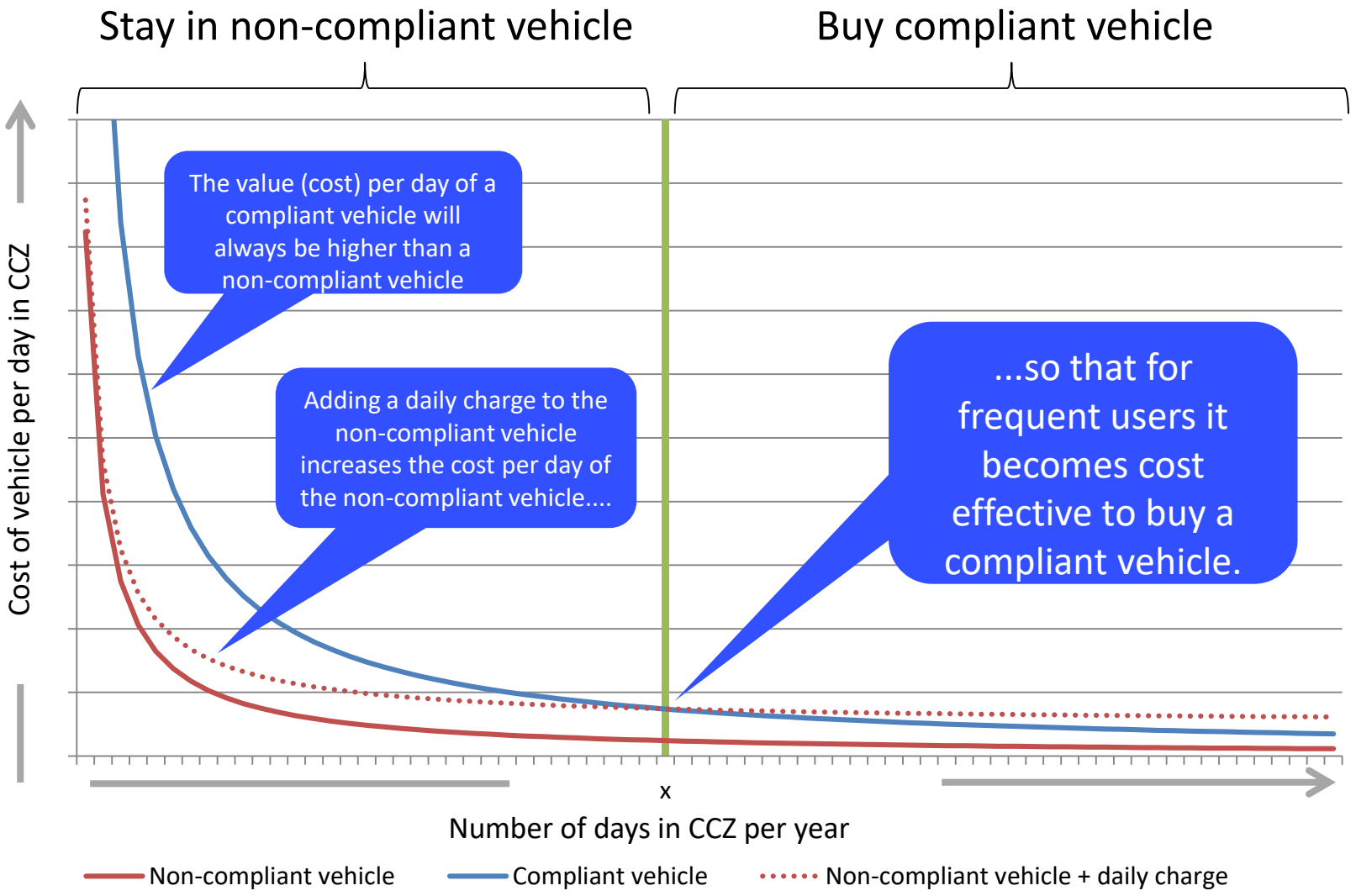


How people might respond to the charge



- Charge has to make the cleaner, compliant vehicle the cost effective option for people
- Want to encourage frequent users of the zone (and therefore contribute most to pollution) to change their vehicles
- Want to still allow low levels of infrequent travel but at a cost

There is a daily charge for ‘non-compliance’



Emissions-based charging schemes – Stronger LEZ and extended ULEZ

2020 - Confirmed

Euro VI standard applies London-wide for heavy vehicles

Vehicle class*	Min emission standard**	or Daily Charge
	Euro 3	£12.50
	Euro 4 petrol or Euro 6 diesel	£12.50
	Euro VI Euro IV PM	£100 £300
	Euro 3 PM	£100

- 2020: to strengthen LEZ standards to a Euro VI requirement for heavy vehicles
- Expected to reduce NOx emissions by 19 per cent London-wide

2021 - Confirmed

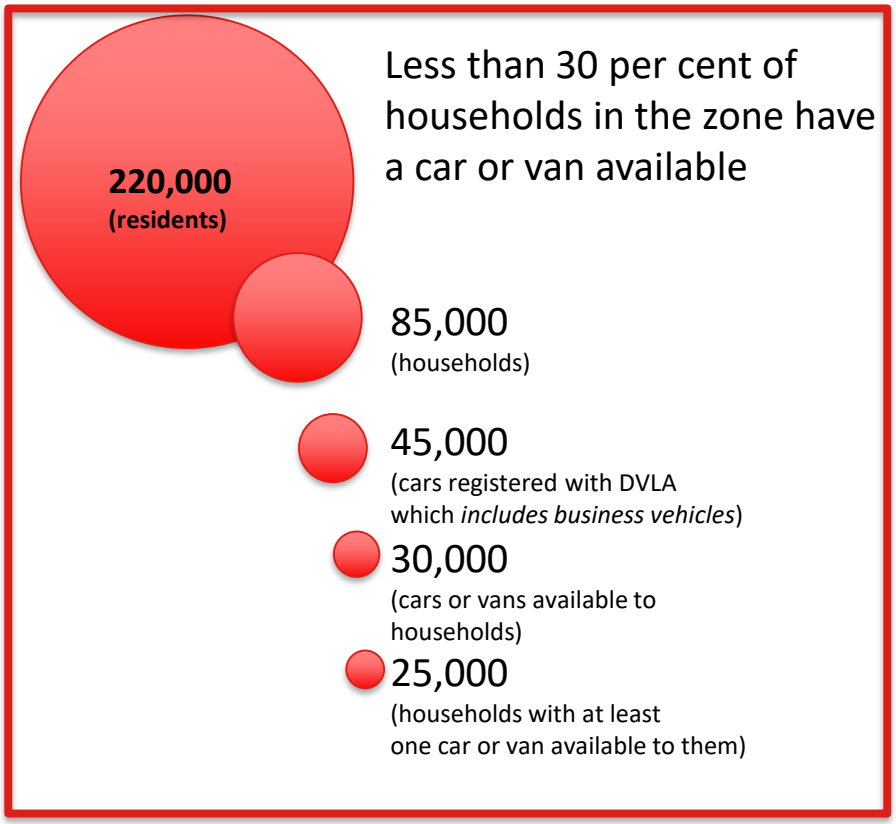
ULEZ expands to inner London

Vehicle class*	Min emission standard**	or Daily Charge
	Euro 3	£12.50
	Euro 4 petrol or Euro 6 diesel	£12.50
	Euro VI Euro IV PM	£100 £300
	Euro 3 PM	£100

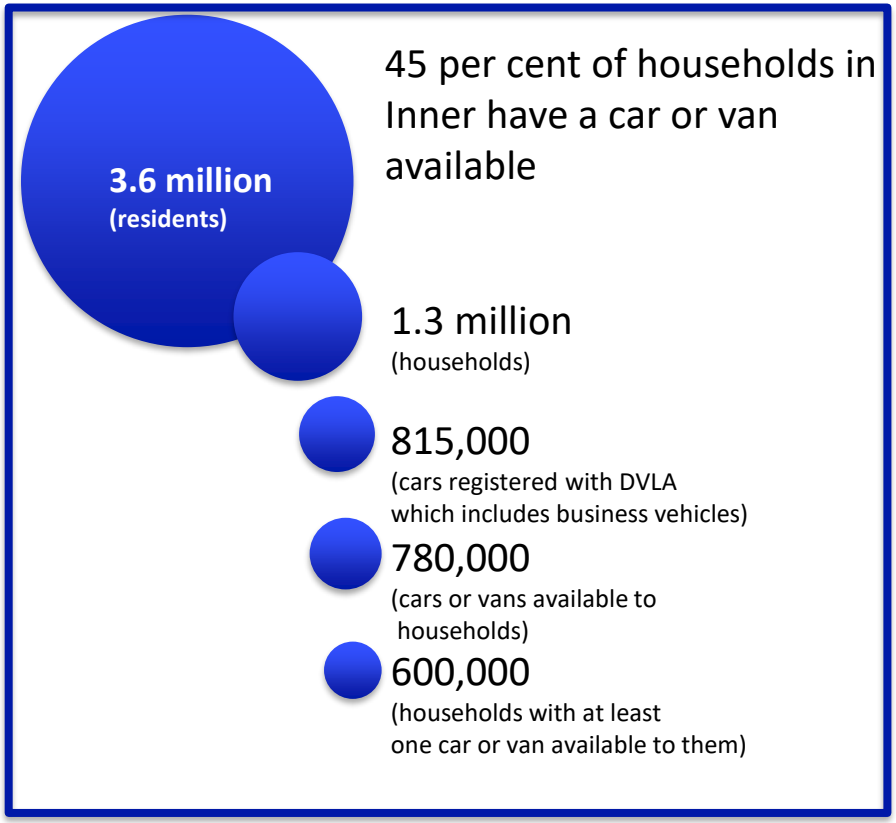
- 2021: to expand the ULEZ so that all vehicles entering inner London are subject to emissions controls from this date forward
- Combined impact is expected to reduce NOx emissions by 28 per cent London-wide

Many more residents

Central ULEZ



Inner ULEZ



Roadmap to zero emission road transport