



**Ultra Low Emission Zone  
Update to the London Assembly**

**February 2014**

**MAYOR OF LONDON**



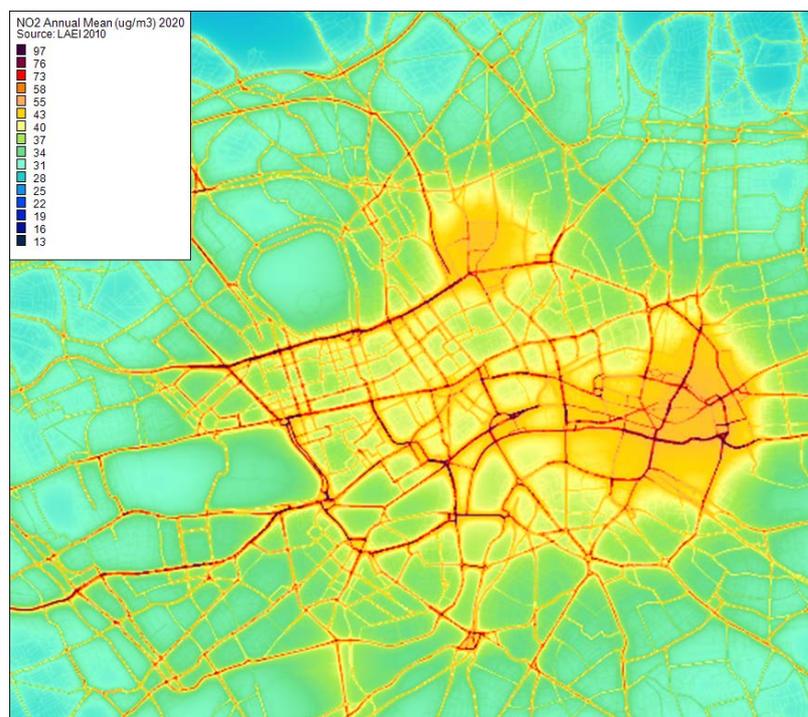
## ULEZ update

This paper provides an update to the London Assembly Environment Committee on the proposal for an Ultra Low Emission Zone (ULEZ). It should be read in conjunction with the initial briefing provided on 11 July 2013 (**Appendix A**), which outlined the objectives of the scheme:

- **Reduce air pollutant emissions** from road transport, particularly those with greatest health impacts, to support Mayoral strategies and contribute to achieving compliance with EU limit values
- **Reduce CO<sub>2</sub> emissions** from road transport, to support Mayoral strategies and contribute to a London-wide reduction
- **Stimulate the low emission vehicle market** by increasing the proportion of low emission vehicles and promoting sustainable travel.

The ULEZ should also help to reduce car use and promote sustainable travel. Addressing air quality is not only an environmental and health objective but also an economic opportunity and a driver for innovation. The Mayor is keen for the ULEZ to stimulate this sector of London's economy.

The Mayor has a legal responsibility for preparing an Air Quality Strategy for London and implementing measures in the City to tackle pollution. In February 2013, the Mayor announced additional investment for air quality improvements during his second term and up until 2020. This included the proposal for an Ultra Low Emission Zone (ULEZ) in central London. In support of this proposal, data available from the latest London Atmospheric Emissions Inventory demonstrates that central London is forecast to have the highest NO<sub>2</sub> concentrations in the Capital (see **Figure 1**), combined with the highest human exposure overall.



**Figure 1:** Annual mean NO<sub>2</sub> concentrations in central / Inner London 2020 (LAEI 2010)

London also has a target to reduce annual emissions of CO<sub>2</sub> by 60 per cent by 2025 on a 1990 base. This is particularly challenging given that a million more people than originally envisaged are now forecast to be living in London by 2031.

## Option development

Since last reporting to the Assembly in July 2013 we have developed our ideas for ULEZ, looking at options in terms of their effectiveness at reducing emissions, feasibility, costs and socio-economic impacts. Specific variables in the option development process were explored as follows.

### Location – where will the ULEZ be located?

The central Congestion Charging Zone would form the boundary of the ULEZ.

### Operating hours – what time will the ULEZ operate?

Options would be based on the Congestion Charging hours (7am – 6pm, Mon-Fri) and Low Emission Zone hours (24 hours, seven days a week).

### Emissions requirement – what is Ultra Low and Near Zero?

Duty and new-car CO<sub>2</sub> targets for car manufacturers are in place to encourage lower CO<sub>2</sub> vehicles. Diesel vehicles tend to have lower CO<sub>2</sub> emissions than petrol but significantly higher NO<sub>x</sub> emissions. ULEZ standards will aim to ensure that there is no detrimental impact on CO<sub>2</sub> or NO<sub>x</sub>.

All vehicles registered from 2014/15/16 (depending on vehicle type) will meet the next Euro standard (Euro VI). This is considered to be **Ultra Low** for air pollutants as it is likely to achieve a significant improvement in emissions performance, particularly NO<sub>x</sub> emissions<sup>1</sup>. TfL will continue to monitor the performance of the standards.

There are other ambitious technologies in development that have the potential to deliver greater and wider reaching emissions savings than conventional engines. Advances are being made across all sectors but it is only likely that these technologies will be readily available in lighter vehicles by 2020 (e.g. plug-in hybrids), unlike much larger heavy duty vehicles.

ULEZ could also support efforts to reduce CO<sub>2</sub> by specifying a requirement that stimulates the uptake of low carbon and/or zero emission capable vehicles. Early indications suggest that a requirement between 75g-35/km CO<sub>2</sub> could be considered **Near Zero** in 2020; however this requires further research as technology advances.

### Vehicle type – what will be affected?

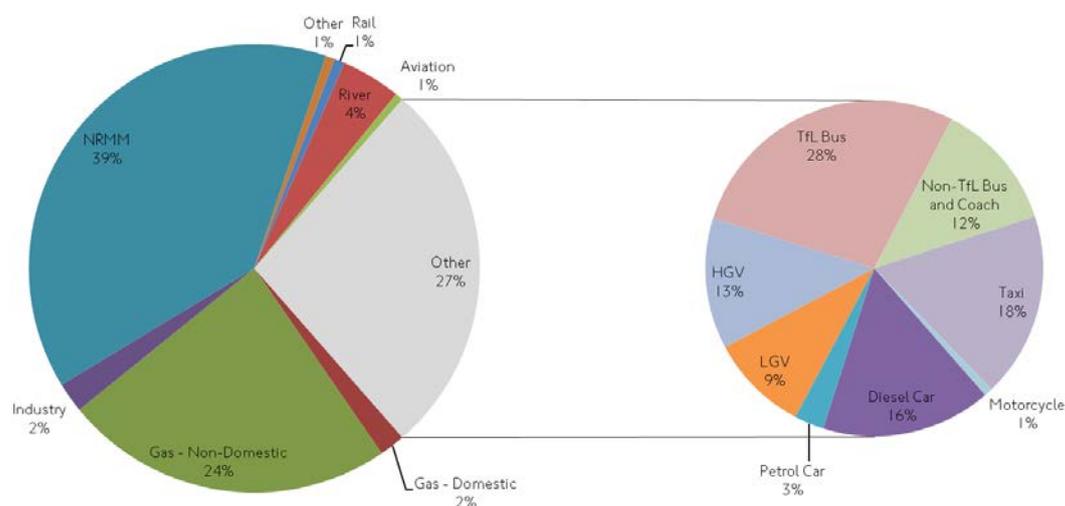
All vehicles were considered as part of the option development process, taking into consideration existing policy and delivery mechanisms. Table 1 provides an indication on the frequency of vehicles entering the CCZ. This is partly reflected in the proportion of NO<sub>x</sub> emissions according to vehicle type (**Figure 2**).

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<sup>1</sup> This is with the exception of powered two wheeled vehicles; where other standards are more appropriate.

**Table 1:** Total annual number of unique vehicles entering the CCZ (24/7)

	Total number of unique vehicles	Total number of vehicles at least once a month
<b>Cars / PHV / P2W</b>	5 million	800,000 (16%)
<b>Vans</b>	619,000	167,000 (27%)
<b>HGVs</b>	118,000	31,000 (26%)
<b>Non-TfL buses</b>	37,400	13,700 (37%)
<b>Buses</b>	2,700	2,700 (100%)
<b>Taxis</b>	24,000	31,000 (26%)

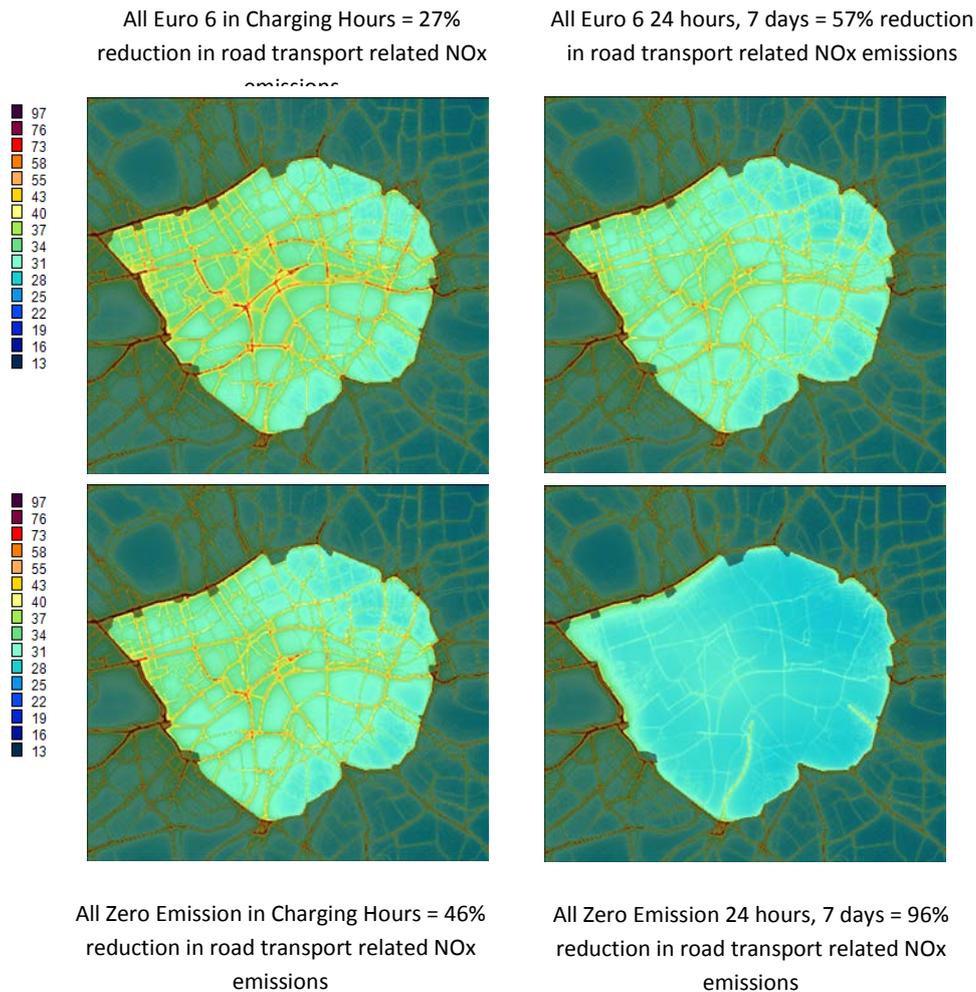


**Figure 2:** Source apportionment of NO<sub>x</sub> emissions in central London (2020)

## Potential Interventions

Using the TfL Business Plan as a starting point, a large number of potential policy interventions and scenarios were developed by TfL and the GLA to attain improvements in air quality and CO<sub>2</sub> reductions. These were ranked in terms of how far they achieve the Mayor’s ambition for zero or near-zero harmful tailpipe emissions in air quality focus areas in central London. Sensitivity tests were also undertaken to consider how certain emissions requirements might impact NO<sub>2</sub> concentrations.

The central London NO<sub>2</sub> concentrations presented in figure 3 below illustrate the relative impact on pollutant concentrations of operating the ULEZ during Congestion Charging hours or 24/7. Example scenarios were selected as benchmarks to test the sensitivity of the modelled concentrations. It is clear that the level of emissions can be reduced significantly by operating a scheme 24/7 as opposed Congestion Charging hours – from 27% to 57% (all Euro 6/VI scenario) and 57% to 96% (all zero emission scenario). The maps show the related change in concentrations that could be expected, where a higher reduction in yellow and red areas illustrates a greater shift towards compliance with EU limit values (see **Figure 3**).



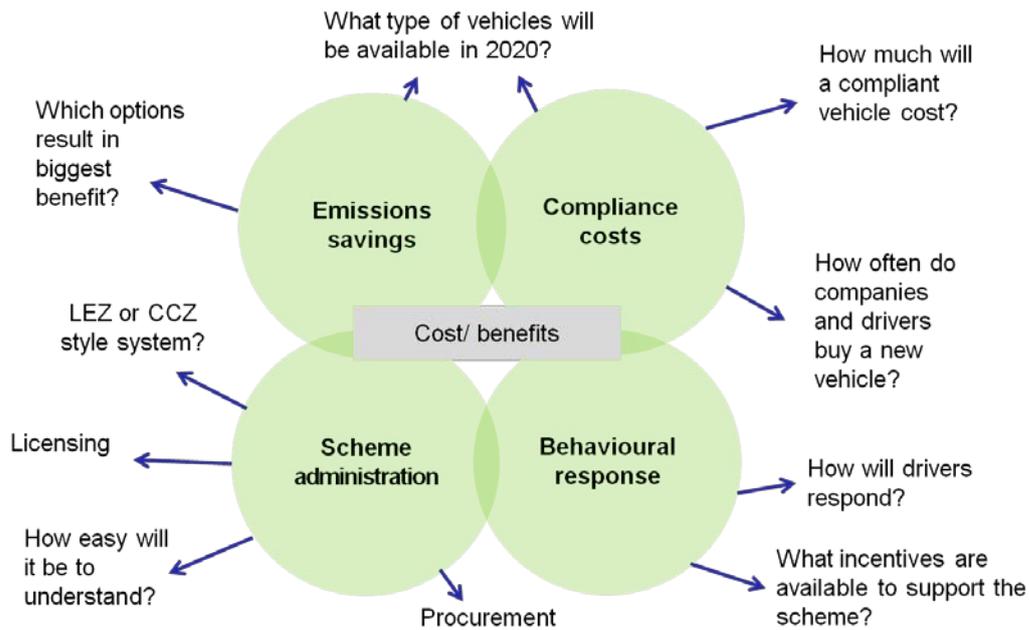
**Figure 3:** NO<sub>2</sub> Annual Mean concentrations (ug/m<sup>3</sup>) for 2020 based on LAEI 2010 – benchmark scenarios

The Mayor is able to influence and specify emissions standards for London’s public transport fleet and emergency services. The public transport fleet, including the TfL bus fleet, Taxis, Private Hire Vehicles (PHVs) and local bus services are all contracted, licensed or regulated by TfL. The Metropolitan Police, London Fire Brigade and London Ambulance Services also operate vehicles in central London are part of the Greater London Authority (GLA) family. In addition, TfL procures vehicles for other services, such as Dial-a-ride but these make only a small proportion of vehicle kilometres driven.

The Mayor’s Transport Strategy (MTS) states that the CCZ and the LEZ should continue to be operated and regularly reviewed against desired outcomes. These schemes could potentially be used to facilitate the ULEZ, which could be achieved by regulation, pricing or some combination of both.

## Option Assessment

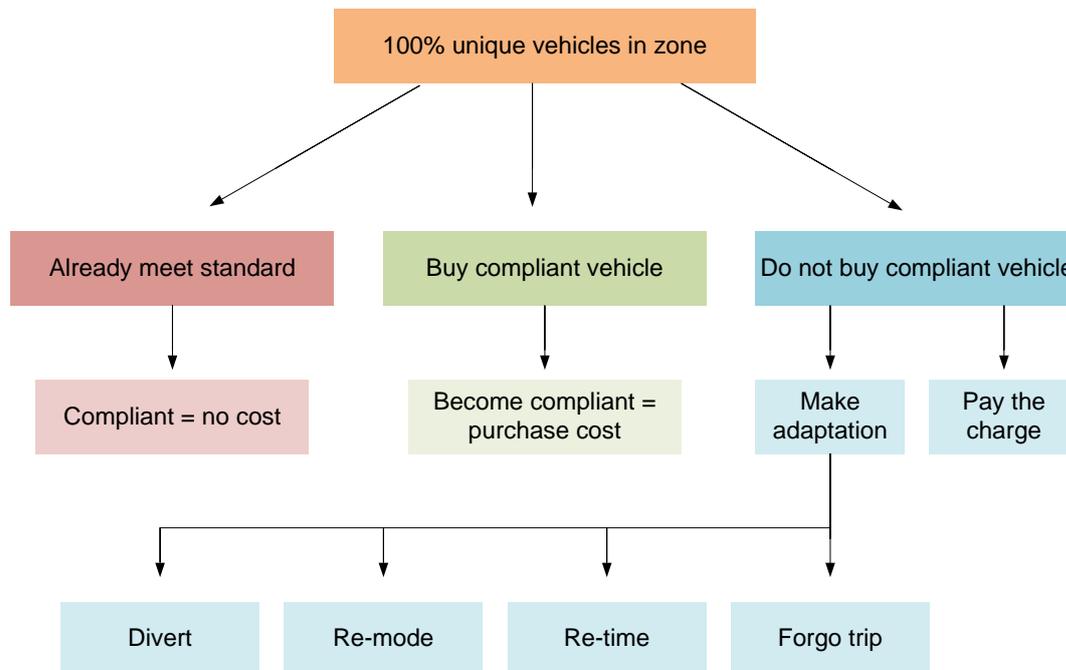
An assessment was undertaken on potential ULEZ policy options (this process is illustrated in **Figure 4**). Alongside estimated cost of compliance (technological) and emissions savings, it highlighted options that were the most feasible to progress for each type of vehicle. Examples of criteria included stakeholder complexity, availability of vehicle technology, complexity, policy alignment and equalities impact.



**Figure 4:** Option development

A range of stakeholders were engaged to help understand the issues, obstacles and boundaries of acceptability in relation to the emerging proposals. Feedback from stakeholder events and briefings has helped to sense-check assumptions and data.

The impact for each type of vehicle was considered in more detail by analysing the way drivers might respond to costs (e.g. the likely purchase price of a compliant vehicle) and the corresponding emission savings (see **Figure 5**). This in turn enabled the estimation of potential secondary impacts, such as changes to traffic volumes.



**Figure 5:** Flowchart of behavioural assessment

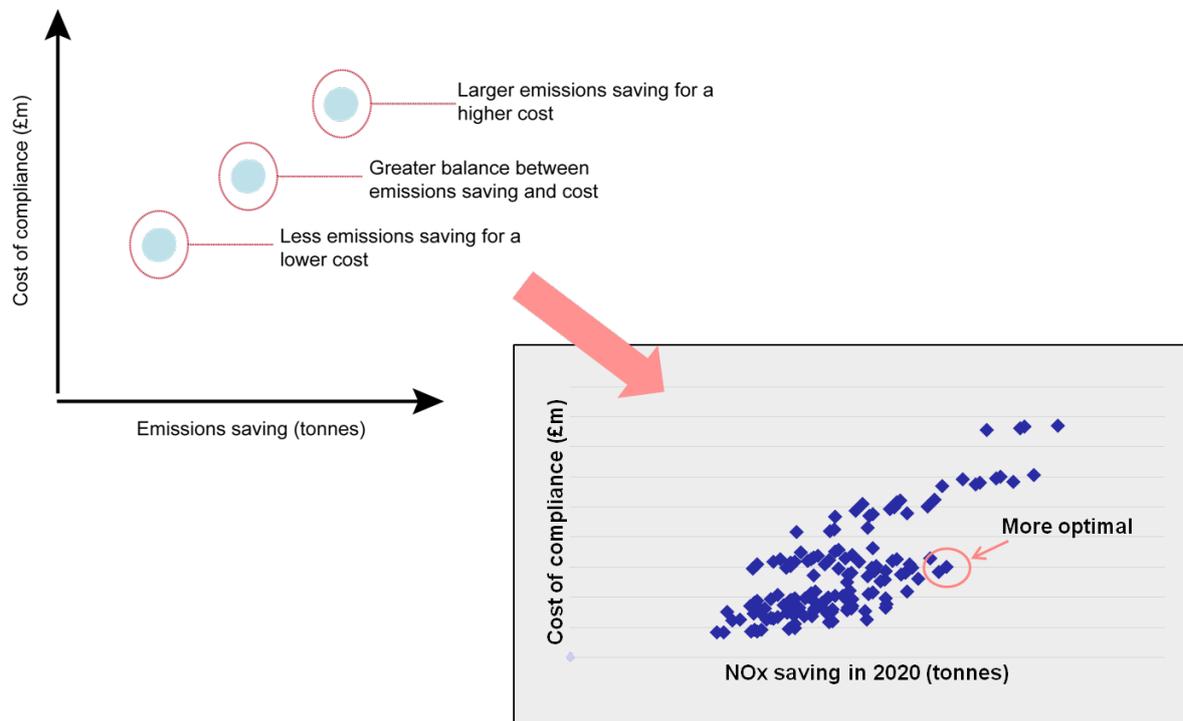
Based on the assessment, it was considered that an ULEZ in central London would be both feasible and effective by adapting the existing CCZ / LEZ schemes. Under such a technological and legal regime, the ULEZ could take a number of forms, with the option to include all vehicles or to limit it to only some types. A key distinction was made between vehicles that TfL can directly influence and those that would have to be regulated or incentivised.

### Proposals for TfL Services

TfL buses, Taxi and Private Hire Vehicles undertake high mileage owing to their strategic function, resulting in a disproportionate level of NO<sub>x</sub> emissions when considered per vehicle not per passenger. Each is service regulated by TfL, which enables a more direct approach to reducing emissions from these fleets, subject to business planning funding being available. For these reasons, the Mayor is keen to ensure options to further improve these vehicle fleets are at the forefront of the proposals.

### Proposals for other vehicles

Owing to the large number and combination of variables for private and commercial vehicles, an assessment of costs and emissions savings was undertaken to identify suitable options for further consideration. This assessment combined the variables identified, anticipated cost of compliance from vehicle upgrades or charges paid in 2020 (assumed from the behavioural assessment) and subsequent NO<sub>x</sub> savings. Ultimately, the option assessment sought to identify proposals that would deliver more emissions savings for less cost (see **Figure 6**).



**Figure 6:** Illustration of ULEZ option assessment for packages of options assumed for private and commercial vehicles

Since technological development varies by vehicle type, proposals were categorised in two ways. Firstly, a proposal was sought to build on the LEZ and examine how to reduce emissions from heavy diesel vehicles specific to that scheme – i.e. HGVs and coaches

(aka Greener Fleets). Emissions from lighter vehicles, such as cars and vans, were considered separately according to whether an option focussed specifically on NO<sub>x</sub> or the uptake of zero emission technology.

Taking into account the impact of each proposal, core packages were proposed for further consideration. Each package in turn would deliver a greater emissions saving than the last but compliance costs would also rise with each increment. Stakeholder engagement on these packages will be undertaken in the spring.

## **Next steps and timetable**

Stakeholder engagement on the ULEZ scheme principles will continue throughout 2014. A Stakeholder Forum will be held on 3 March, which will outline, discuss and survey opinion of the ULEZ policy options. Further engagement and stated preference surveys will be undertaken to understand in greater detail the behavioural reaction to specific proposals. This information and further analysis will help shape a final proposal for consultation in early 2015. Subject to approval the scheme could be introduced in 2020.

## **Appendix A**

### **Briefing to the London Assembly – July 2014**

# BRIEFING TO LONDON ASSEMBLY ENVIRONMENT COMMITTEE LONDON ULTRA LOW EMISSION ZONE (ULEZ)

11 July 2013

## 1 LONDON'S AIR QUALITY AND EMISSIONS

- 1.1 This year, the Mayor has published a progress report on his Air Quality Strategy (GLA, 2010). Significant improvements have been made over recent years and London is now broadly compliant with EU limit values for Particulate Matter (PM), however, ongoing reductions are needed (especially PM<sub>2.5</sub>) to further protect human health. Conversely, like most European cities, many UK cities and indeed even smaller UK towns, London does not currently meet limit values for NO<sub>2</sub>.
- 1.2 In February 2013, the Mayor announced additional investment for air quality improvements during his second term and up until 2020. This included the proposal for an Ultra Low Emission Zone (ULEZ) in central London. In support of this proposal, data available from the latest London Atmospheric Emissions Inventory (LAEI 2010) demonstrates that central London is forecast to have the highest NO<sub>2</sub> concentrations in the Capital (see Figure 1), combined with the highest overall human exposure.

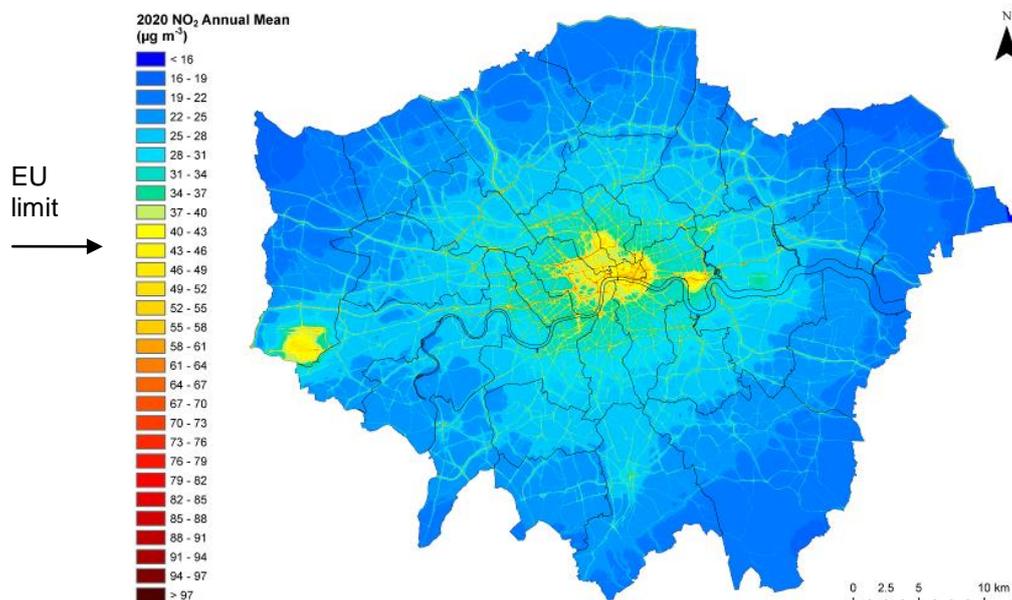


Figure 1: Annual mean NO<sub>2</sub> concentrations for Greater London in 2020  
(Source – London Atmospheric Emissions Inventory 2010)

- 1.3 The Mayor recognises that other parts of London continue to face their own air quality challenges and is developing an Air Quality and Emissions Action Plan considering all air quality emissions sources and geographic areas. An ULEZ feasibility study forms part of this work.

## **2 LONDON'S LOW EMISSION ZONE (LEZ)**

- 2.1 The Mayor's Air Quality Strategy (MAQS) proposed to include a Euro IV NO<sub>x</sub> requirement in 2015 for larger diesel engine vehicles entering the LEZ (aka LEZ Phase 5). However, the poor performance of Euro IV and Euro V vehicles, which produce more NO<sub>x</sub> emissions than anticipated (especially in urban driving environments) and the fact that the government did not introduce a verification scheme for engine compliance, coupled with the fact that the majority of savings from LEZ Phase 5 could be gained from TfL buses, led the Mayor to conclude that pursuing a TfL buses only option would be the most cost effective solution.
- 2.2 The new proposal will ensure that all TfL Buses meet at least a Euro IV requirement for NO<sub>x</sub> by December 2015. It is estimated to save 600 tonnes (instead of 790 tonnes originally envisaged for LEZ Phase 5), or 76% of the benefits, with no cost to vehicle operators and a maximum investment of £18m from TfL to accelerate the early uptake of Euro VI within the TfL buses fleet. Retrofitting the remaining 900 Euro III buses was not cost effective as they only have two years on average remaining in service. Nevertheless, more is needed to be done to tackle emissions in the medium to long-term.

## **3 PROPOSAL FOR AN ULTRA LOW EMISSION ZONE (ULEZ)**

- 3.1 On 13 February 2013, the Mayor announced his vision for an ULEZ in central London by 2020. The following objectives were developed:
- (a) Reduce air pollutant emissions from ground-based transport, particularly those with greatest health impacts, to support Mayoral strategies and contribute towards compliance with EU limit values
  - (b) Reduce CO<sub>2</sub> emissions from ground-based transport, to support Mayoral strategies and contribute to a London-wide reduction
- 3.2 Consistent with proposals in the MTS, the ULEZ is expected to reduce car use and promote sustainable travel / mode shift (e.g. cycling). It will increase the proportion of ultra low or zero emission vehicles in London and stimulate the uptake / development of low emission vehicles, benefiting the Capital in terms of jobs and growth from the emergence of a new low emission economic sector.

## **4 KEY QUESTIONS CONSIDERED**

### **What should be regarded as Ultra Low?**

- 4.1 All new vehicles registered from 2014/15/16 (depending on vehicle type) will meet the next Euro standard (Euro VI) and it is expected that more than 40 per cent of the vehicles operating in central London will meet this standard by 2020 (see **Appendix 1**). TfL will continue to work with its

European partners to evaluate the success of the new standard in reducing emissions, as and when vehicles become available.

- 4.2 Euro VI is considered to currently be *Ultra Low* for NO<sub>x</sub> emissions as it is likely to achieve a significant reduction in NO<sub>x</sub> from diesel engines compared to older vehicles. However the feasibility study will explore options beyond this too, including zero emission vehicles, that would maximise emissions benefits for PM<sub>10</sub>, NO<sub>x</sub> and CO<sub>2</sub>.
- 4.3 Over the past years, drivers have purchased diesel fuelled vehicles over petrol. This is owing to tax incentives as part of the Government's drive to reduce CO<sub>2</sub> emissions and fuel efficiency savings. Duty and new-car CO<sub>2</sub> targets for car manufacturers are in place to encourage lower CO<sub>2</sub> vehicles. This has led to new diesel car sales in the UK dramatically increasing, from an approximate 14% share in 2000 to 50% in 2012.
- 4.4 Whilst an increase in the proportion of diesel vehicles has helped reduce CO<sub>2</sub> emissions, it has led to more air pollutants emitted on London's roads. Diesel vehicles tend to have lower CO<sub>2</sub> emissions than petrol but have in situ produced significantly higher NO<sub>x</sub> emissions than anticipated. An ULEZ needs to address the 'dieselisation' of London's fleet as this has been a particular cause of air pollution in recent years.

#### **What area will the zone cover?**

- 4.5 Central London is projected to remain an air quality hotspot beyond 2020. It is not projected to achieve compliance with NO<sub>2</sub> EU limit values by 2020 (alongside aviation and construction hotspots elsewhere in the Capital). It is also home to the West End, an area with one of the highest entertainment, business and tourist concentrations in the country and approximately 200 million visitors annually. Consequently, public exposure to air pollutants is likely to remain at its highest in this area.
- 4.6 The Congestion Charging Zone (CCZ) has a natural boundary shaped by the inner ring road, which has become embedded in travel behaviour. It is proposed this area is used as a basis for the ULEZ option development. Its exact detail is reliant on further feasibility work and other small areas within this area will also be considered (e.g. West End).

#### **Who will be included in the zone?**

- 4.7 A starting position for this work is that the ULEZ will affect all vehicles entering central London. Further work will be undertaken to examine the economic and equalities impact on different users including residents and where necessary, critical exemptions will be identified.

#### **What time will the zone operate?**

- 4.8 Roads with high flows have consistently high NO<sub>2</sub> concentrations throughout an entire day, whilst urban background sites tend to start

exceeding limit values around 4am, with concentrations reducing around 7pm.

- 4.9 For the purposes of option development, the effect of ULEZ operating during CC charging hours, daytime and 24/7 will be modelled during the next stage of the feasibility study.

#### **What about compliance costs?**

- 4.10 As part of the assessment of options for the ULEZ, it will be necessary to consider potential compliance costs on individuals and businesses, particularly on more vulnerable users. The Mayor will need to balance these economic and social costs with any potential environmental benefits when designing the final scheme.

#### **What about other emission sources?**

- 4.11 The MAQS states that the Mayor will oppose additional runway capacity at Heathrow airport. To progress this policy, the Mayor has asked Transport for London (TfL) to design and develop an aviation capacity solution that best meets the needs of London and the UK.
- 4.12 The MAQS also acknowledges that further mitigation of air quality impacts of existing operations at London's airports needs to be undertaken. Through initiatives such as the Mayor's Air Quality Fund, TfL is working with the boroughs and other stakeholders to implement measures that reduce emissions in other hotspot areas.
- 4.13 The Mayor's River Action Plan includes work to reduce emissions to air from river boat operations and will be considered in parallel.
- 4.14 The ULEZ is designed to reduce ground-based transport emissions. The GLA is developing separate policies to reduce non-transport emissions, which account for a high percentage of background emissions. This includes new measures to address emissions at construction sites (e.g. a low emission zone for Non-Road Mobile Machinery), further retrofit of homes and buildings, new CHP/biomass emissions standards, and providing new guidance on the application of "air quality neutral" in the planning system. The GLA is also taking a lead in integrating air quality into the public health system.

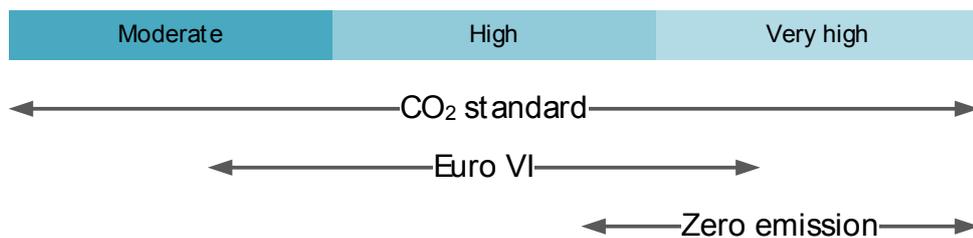
#### **What about the rest of London?**

- 4.15 As indicated in paragraph 1.3, the Mayor has asked TfL to develop an Air Quality & Emissions Action Plan, which will consider further London-wide and area-based measures to reduce emissions, exposure and raise awareness.

## 5 ULEZ OPTION DEVELOPMENT

- 5.1 At the Mayor's request, a wide ranging option development process to consider different ULEZ policy proposals has been undertaken. Options most effective in reducing emissions and considered reasonably acceptable and feasible were recommended for further study.
- 5.2 As part of this process, air quality sensitivity tests were undertaken to provide a benchmark assessment. These tests assumed wholesale changes to vehicle fleets, providing an indication of how an ULEZ might influence NO<sub>2</sub> and PM<sub>10</sub> concentrations within the CCZ under different scenarios. The initial output from this exercise for NO<sub>x</sub> emissions are illustrated in **Appendix 2** for these benchmark tests and the baseline assumptions.
- 5.3 Using these tests as a benchmark for emissions reduction, ULEZ option packages were created dependent on likely acceptability, technological and operational constraints. Figure 2 provides an indication of the level of ambition for each package.

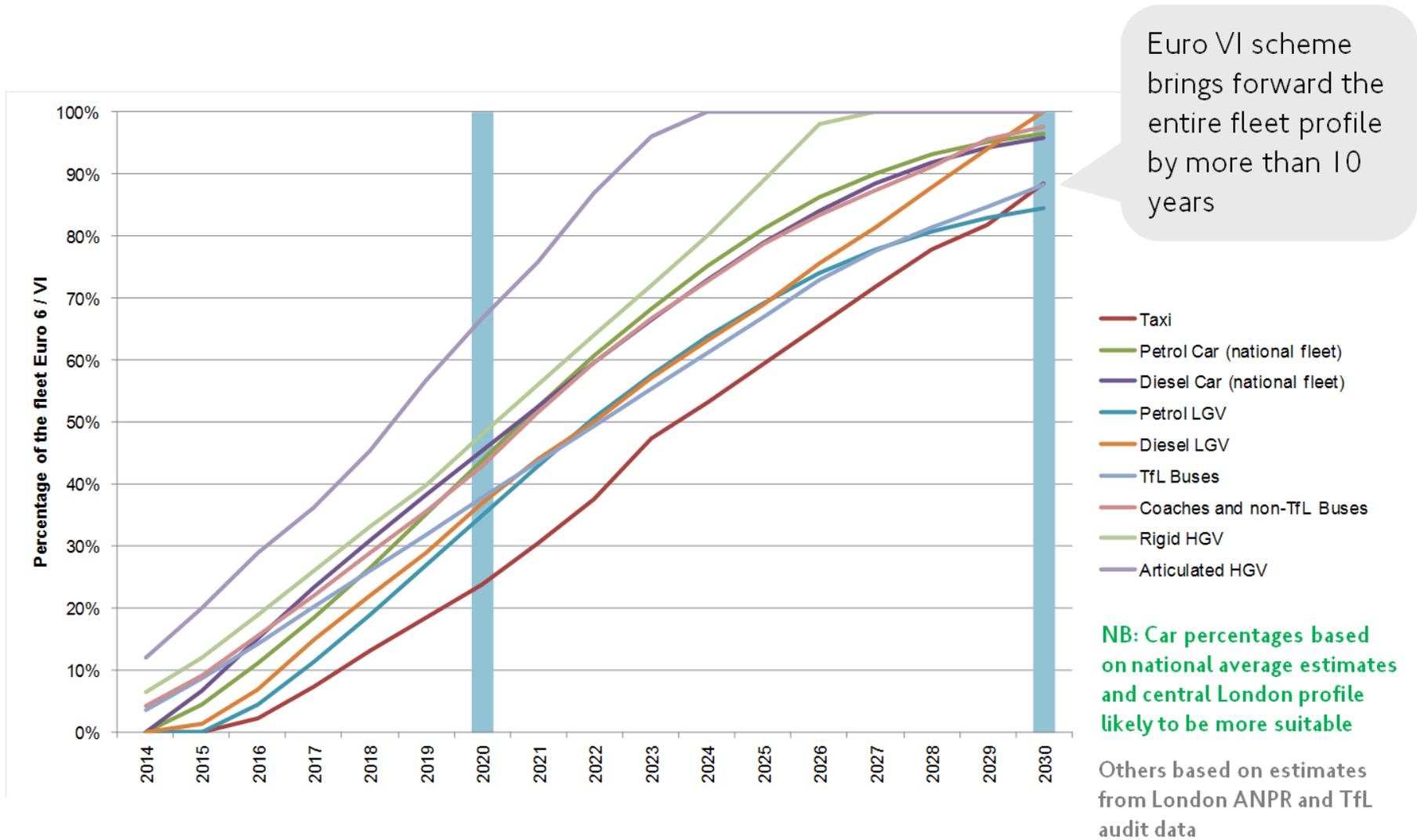
**Figure 2: Initial option packages for the ULEZ**



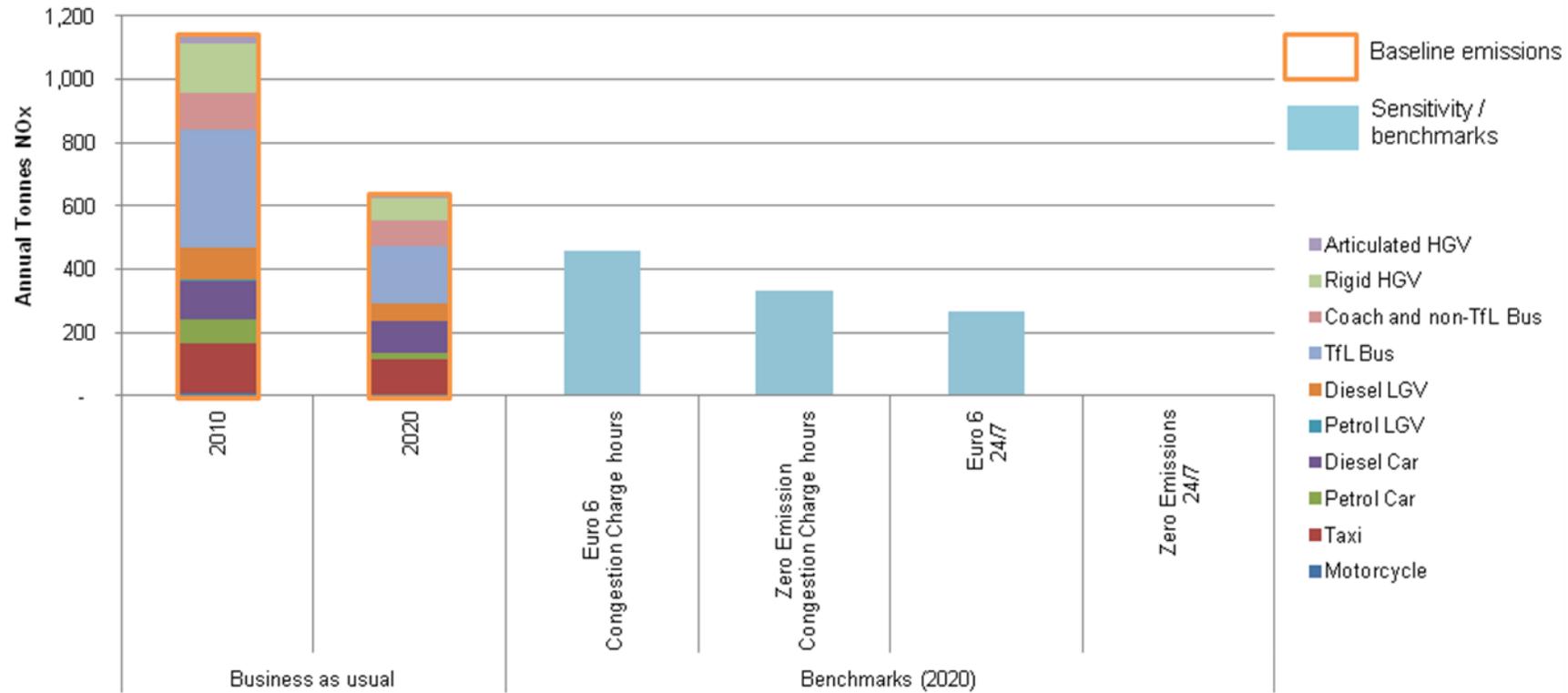
## 6 TIMESCALES AND NEXT STEPS

- 6.1 A successful ULEZ will deliver a step change in the level of emissions from ground-based transport. The next stage of our feasibility will include engagement with stakeholders. This engagement will outline the feasibility study objectives and programme and will take place from now until the end of the year. This will enable TfL to develop a better understanding of acceptability, feasibility and likely user behaviour. In parallel, additional work will assess the deliverability and operational cost of an ULEZ and its broader economic impact
- 6.2 A preferred ULEZ package will be recommended to the Mayor by the end of 2013, with likely supporting measures also considered at this time. Following discussion with the Mayor, TfL will report back to the London Assembly Environment Committee with its recommendation.

## APPENDIX 1: PROJECTED UPTAKE OF EURO VI VEHICLES

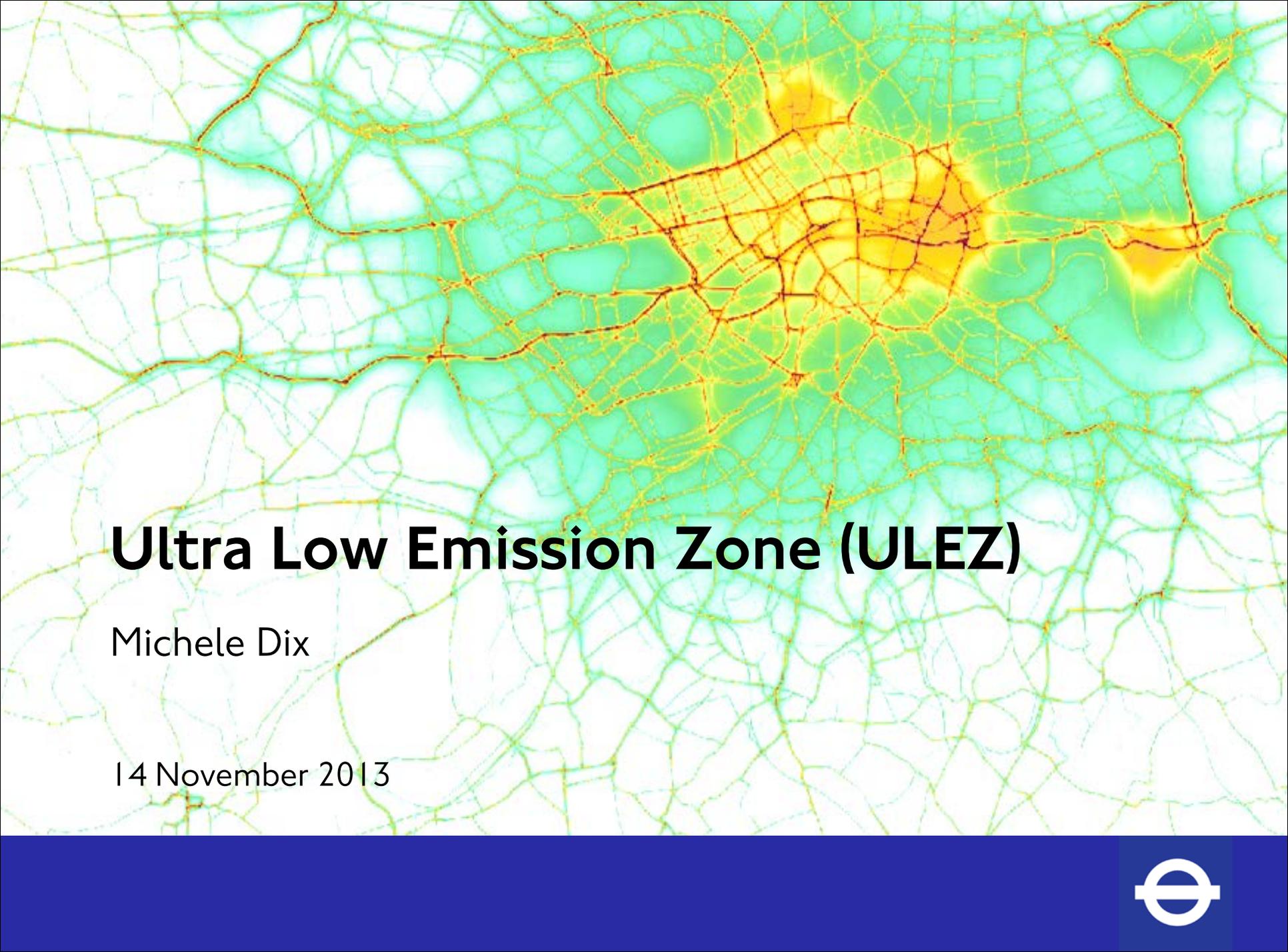


## APPENDIX 2: NO<sub>x</sub> SAVINGS (TONNES PER ANNUM) IN THE CCZ IN 2020, SET AGAINST BENCHMARKS AND TRAJECTORY



## **Appendix B**

### **Briefing to stakeholders – November 2013**



# Ultra Low Emission Zone (ULEZ)

Michele Dix

14 November 2013



# Contents

- Challenges and existing policies
- ULEZ
  - Objectives and purpose
  - Identifying and refining potential policies
  - Assessing the options
  - What we are considering...
  - Next Steps
- Questions



## Mayor's Vision for a ULEZ

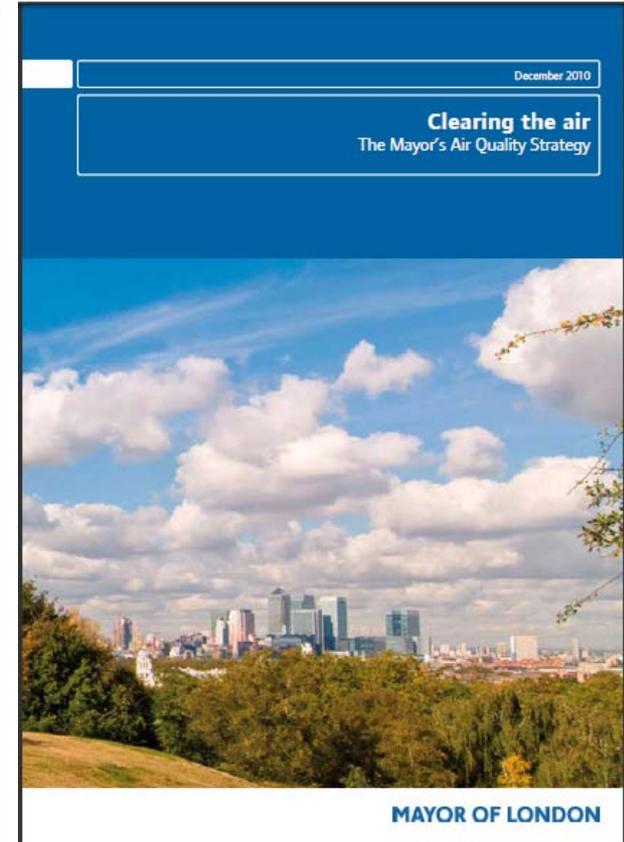
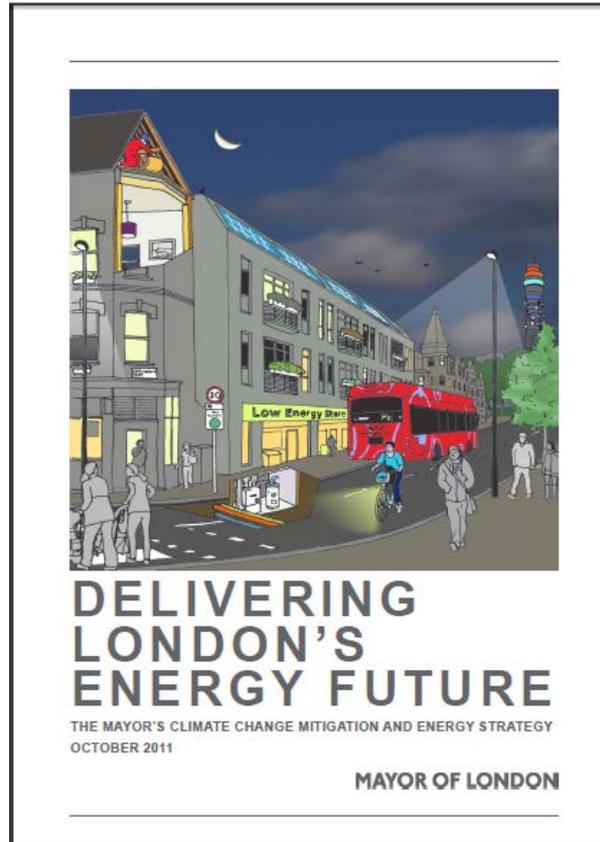
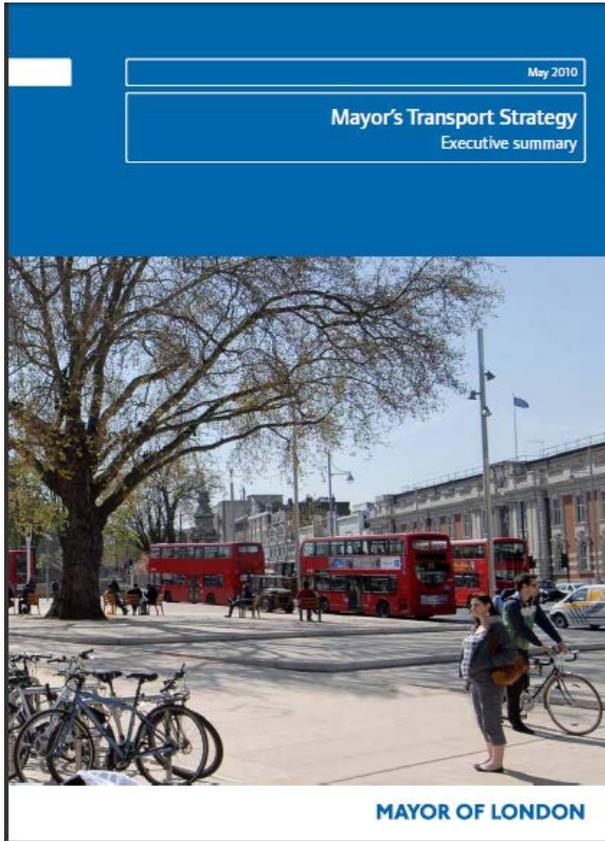
*To create an ultra low emission zone where almost all the vehicles running during working hours are either zero or low emission.*

*This could deliver incredible benefits in air quality and stimulate the delivery and mass use of low emission technology.*



Boris Johnson, Mayor of London

# Meeting London's Challenges



Mayor's Transport Strategy

Mayor's Climate Change Mitigation and Energy Strategy

Mayor's Air Quality Strategy



# Work to date and planned interventions

## Implemented

- CC Z Ultra Low Emission Discount
  - Incentivising very low emission vehicles
  - Standards recently tightened to maximise effect
- LEZ
  - Focussed on particulate matter (PMs)
  - Only applies to heavy diesel vehicles
  - Standards tighten in 2012
  - Next phase for NO<sub>x</sub> in 2015 only applies to TfL Buses
- Taxi 15 year age limit
- Private Hire Vehicle 10 year age limit
  - Both introduced in 2012

**But there remains a gap between where we can get to by 2020 and the EU limit values for NO<sub>2</sub>**



# London's challenges in 2020 - Air Quality Hotspots

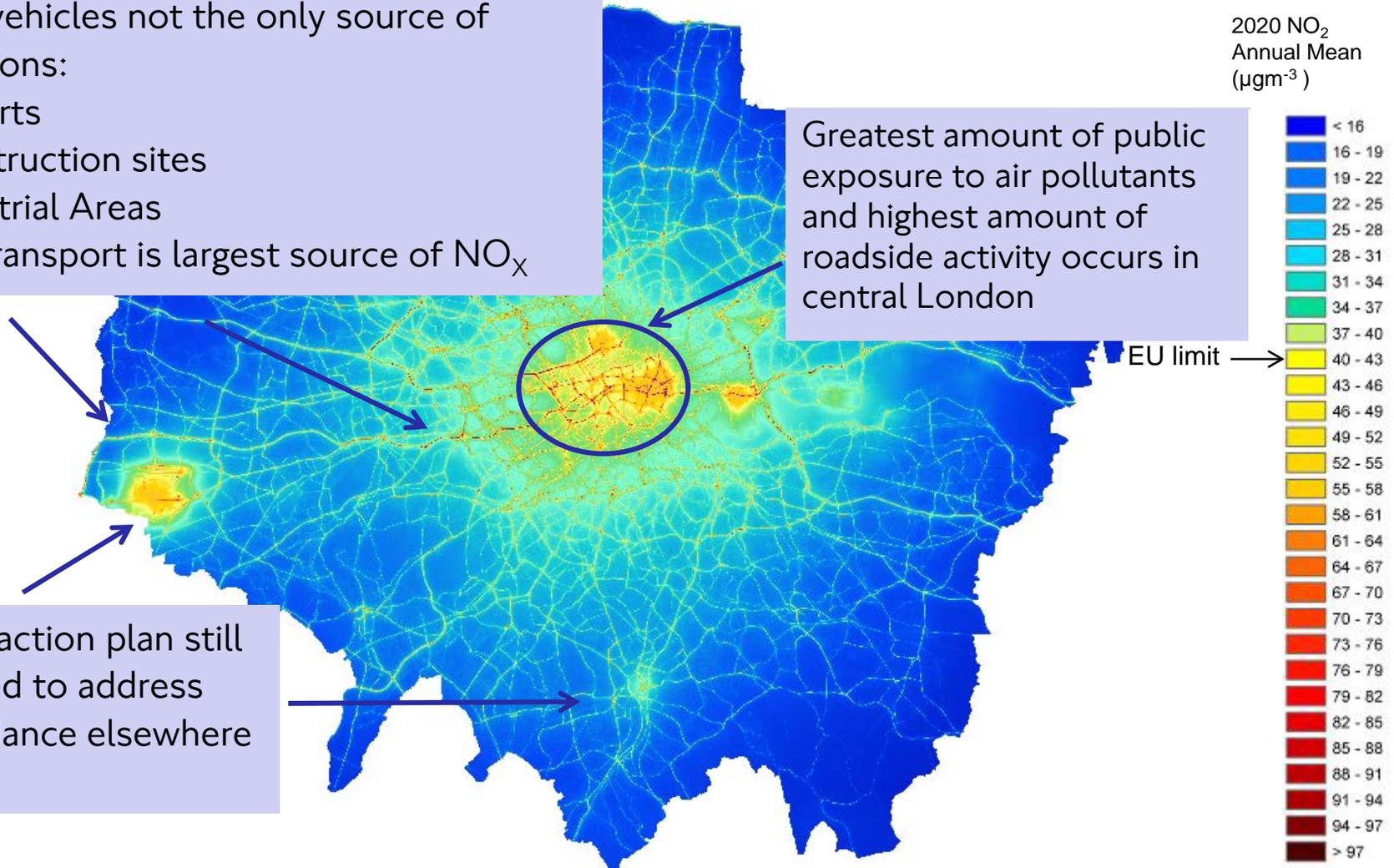
Road vehicles not the only source of emissions:

- Airports
- Construction sites
- Industrial Areas

BUT transport is largest source of  $\text{NO}_x$

Greatest amount of public exposure to air pollutants and highest amount of roadside activity occurs in central London

Wider action plan still required to address exceedance elsewhere

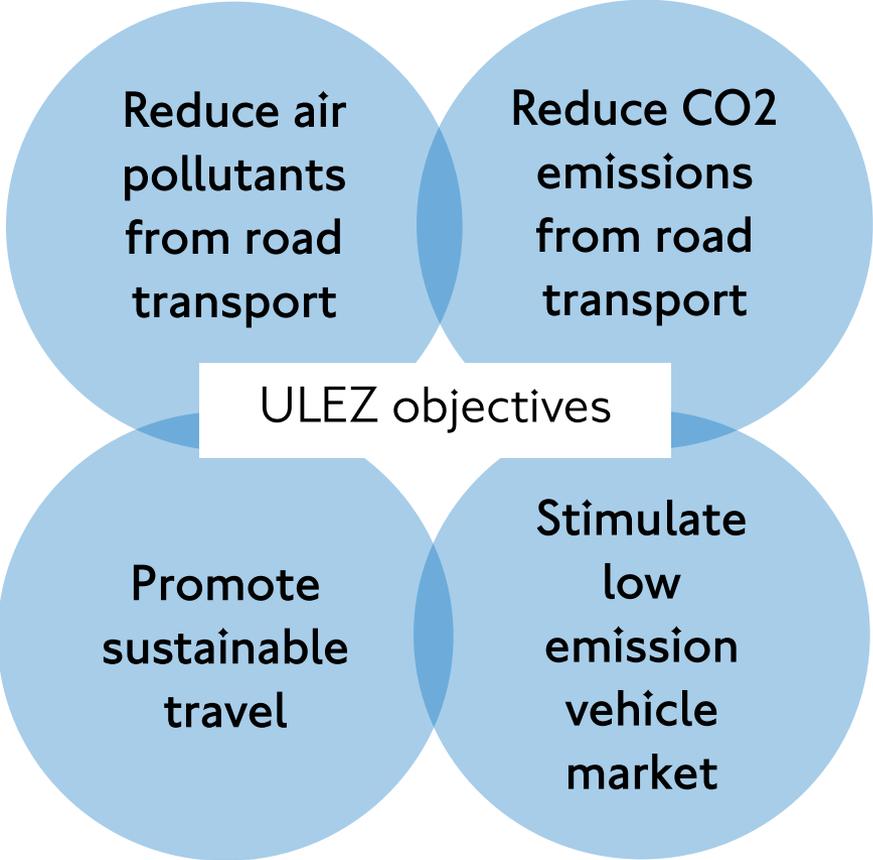


## Associated policies

- Any central London policy should be consistent with others in development:
  - Roads Task Force
  - Cycling Vision, including cycle safety
  - Walking
  - West End
  - Mayor's 2020 Vision
  - Freight
  - Taxis
  - Tourist Bus Action Plan
- Wider Air Quality issues will continue to be addressed through:
  - The Mayor's Air Quality Strategy
  - Transport Emissions Action Plan; and
  - The Mayor's Low Emission Vehicle Road Map
- Other policy developers
  - Government
  - EU
  - Boroughs



# Objectives and purpose



# Objectives and purpose

Reduce air  
pollutants  
from road  
transport

## Addressing the NO<sub>2</sub> problem

- Dieselisation of fleet
- Road transport roughly half the source of NO<sub>x</sub>
- Unlikely to achieve compliance with EU NO<sub>2</sub> limit value by 2020

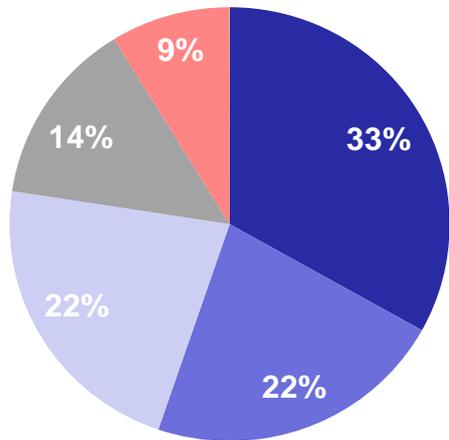
## Improving health impacts

- 4,000 Londoners die prematurely linked to air pollution (source DoH)
- Reported levels of PM10 within the EU limit with some roadsides at risk of exceedance
- Air pollution linked to risk of cancer and affects asthma sufferers.

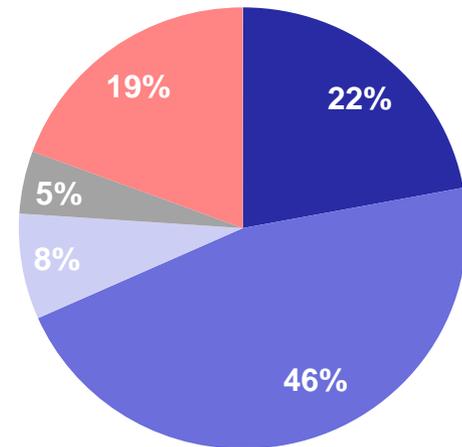


# Central London emissions profile 2020

## Whole London



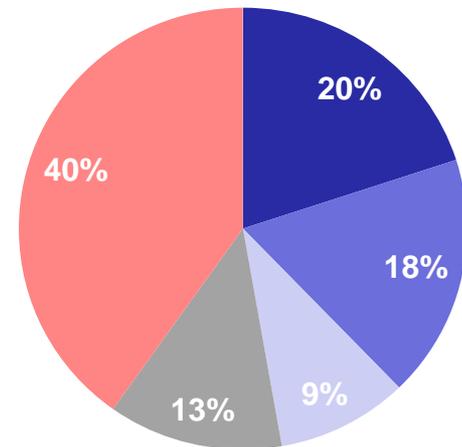
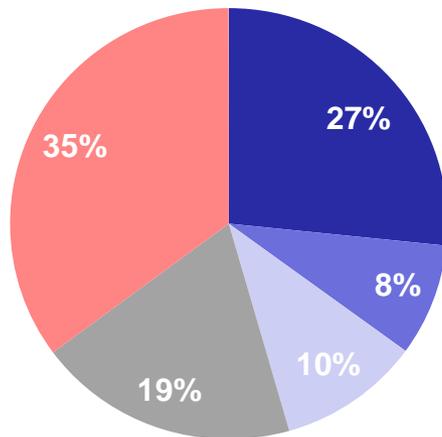
## Central London



PM<sub>10</sub>

NO<sub>x</sub>

- Car & motorcycle
- Taxi
- Van
- HGV
- Bus and coach



# Objectives and purpose

- Road transport responsible for 21% CO<sub>2</sub> emissions in central London
- Diesel vehicles tend to have a lower CO<sub>2</sub> emissions than petrol but much higher NO<sub>x</sub> emissions

Reduce CO<sub>2</sub> emissions from road transport

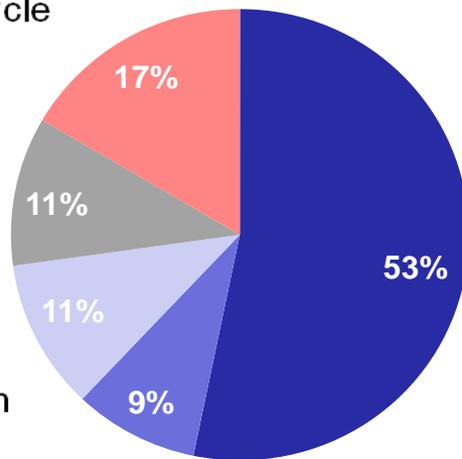
■ Car & motorcycle

■ Taxi

■ Van

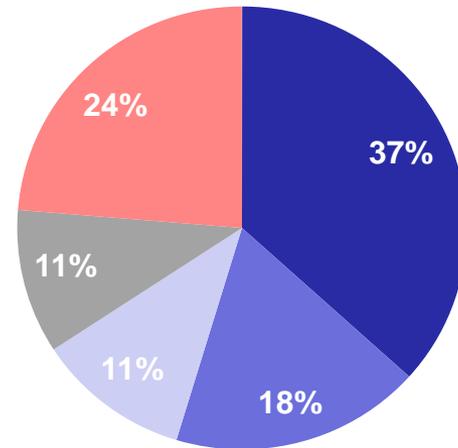
■ HGV

■ Bus and coach



Whole London

CO<sub>2</sub>



Central London



# Objectives and purpose

- Supporting Mayor's ambition for electric, plug-in hybrid and alternative fuel vehicles to be common place on London's streets
- Influence and gain from Government's investment to stimulate the low emission vehicle market



Stimulate low  
emission  
vehicle  
market

# Objectives and purpose

## THE MAYOR'S VISION FOR CYCLING IN LONDON

An Olympic Legacy for all Londoners



MAYOR OF LONDON

Transport for London

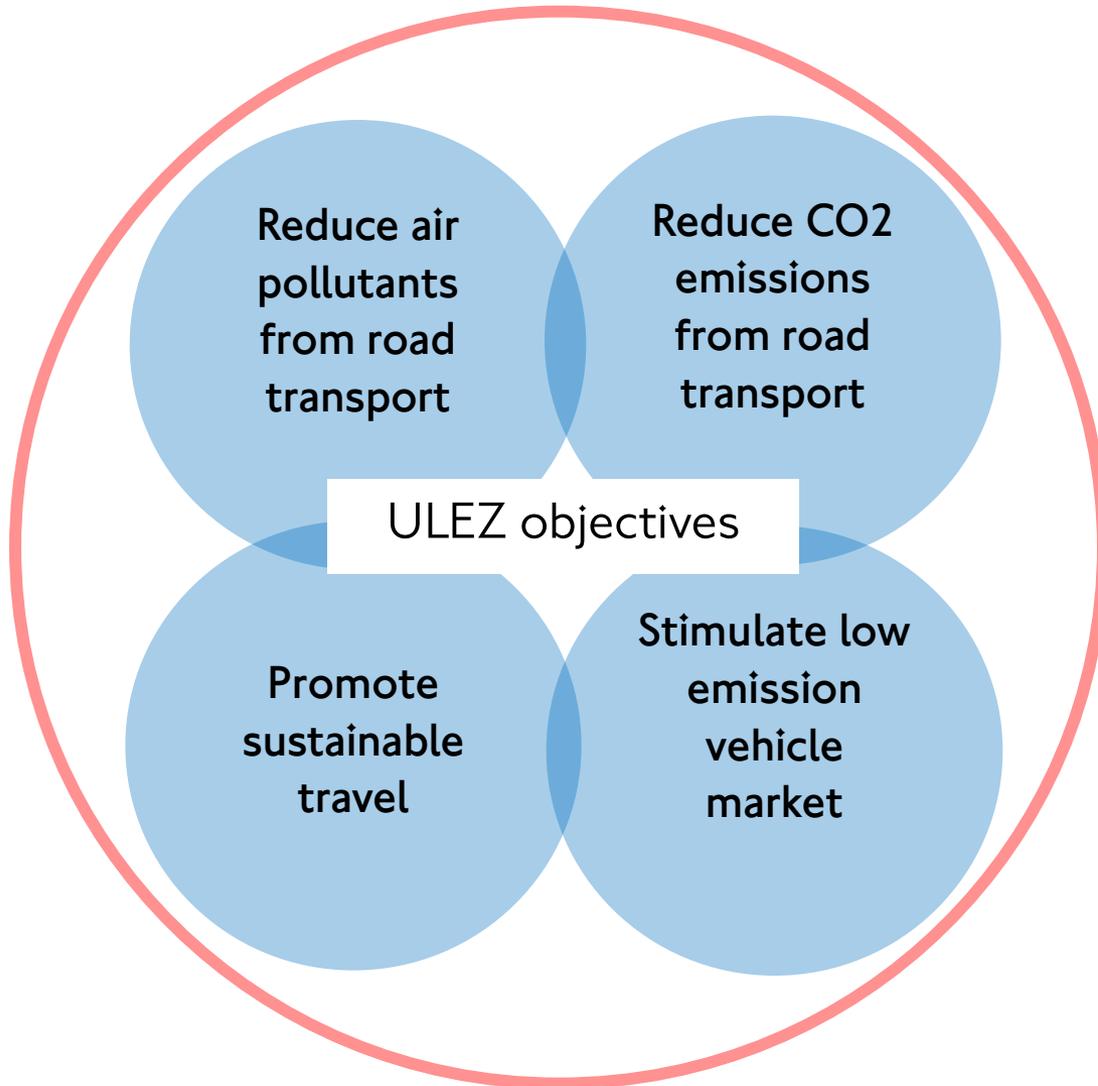


Promote  
sustainable  
travel

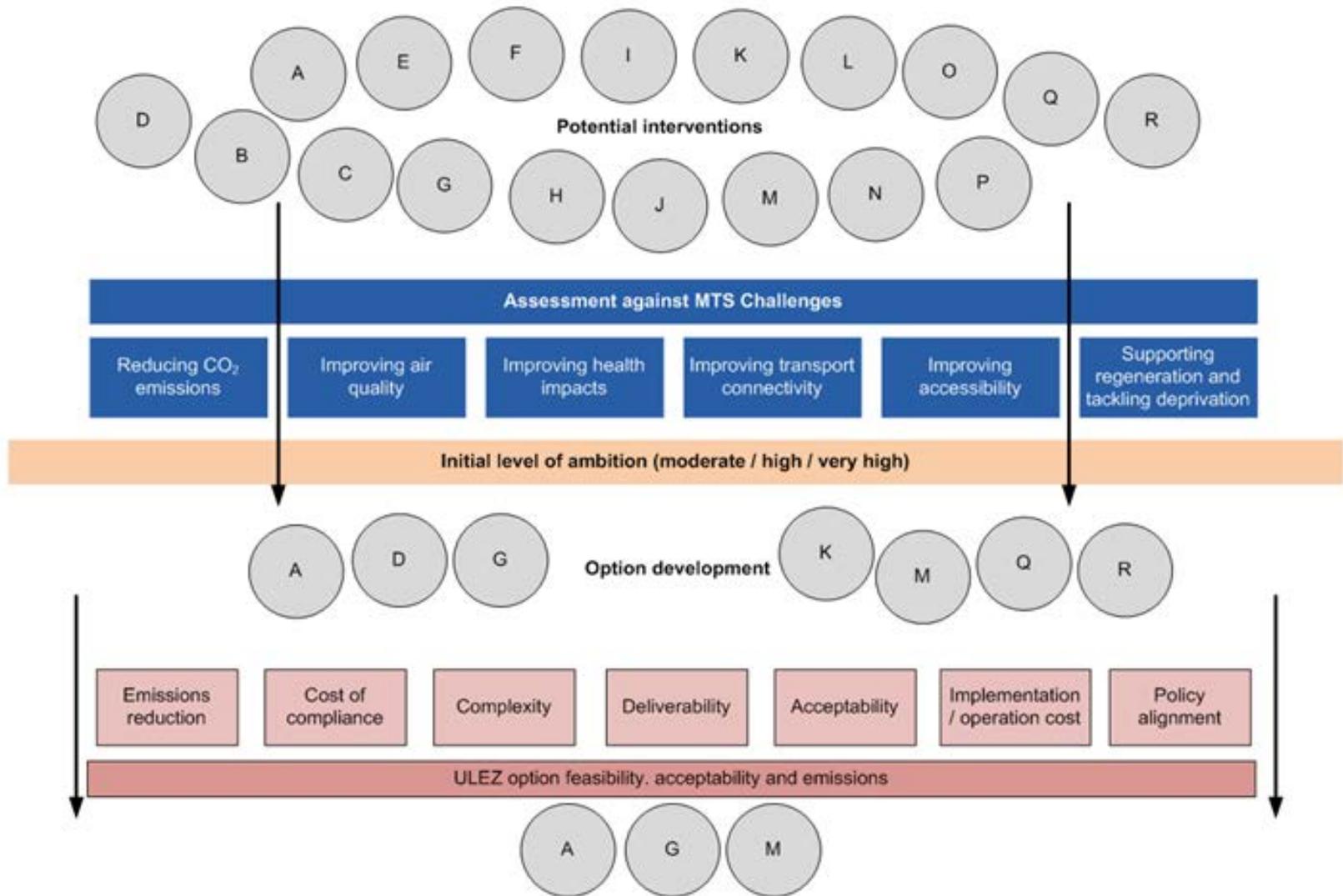
- Supporting the Mayor's cycling vision
- Encouraging those who can make journeys by public transport to shift
- Working with the freight industry to change delivery patterns as well as reduce emissions from HGVs and LGVs
- Encourage zero emission deliveries



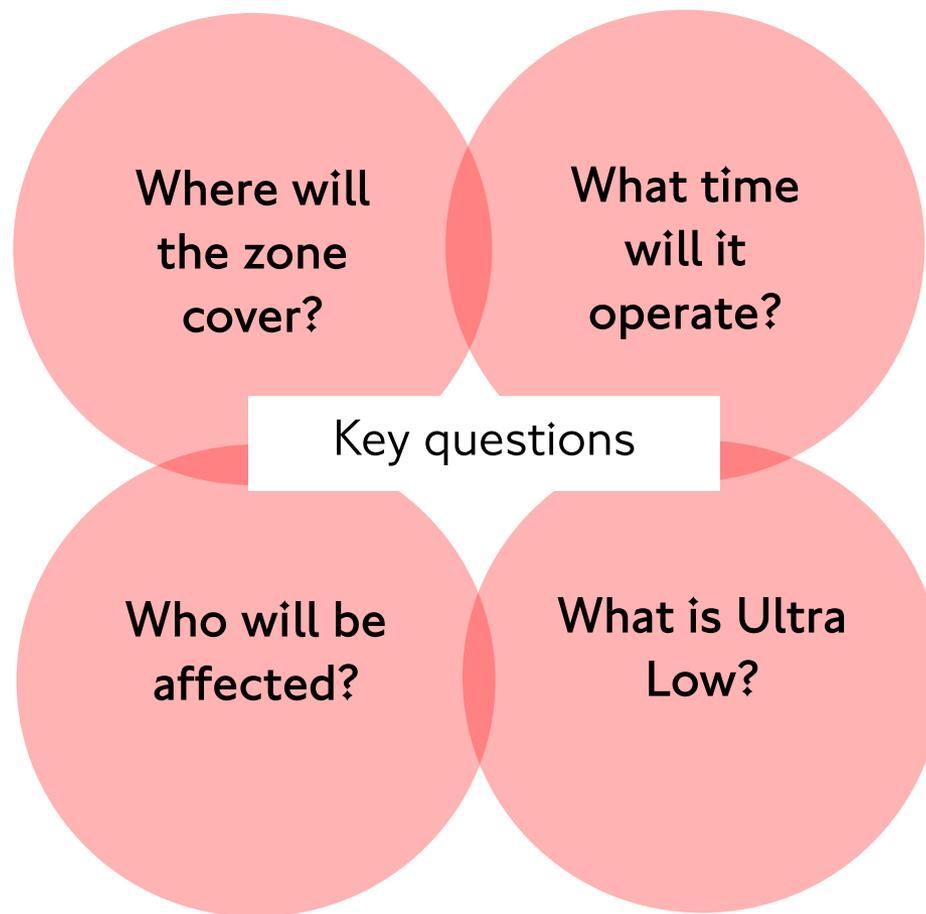
# Identifying potential policies



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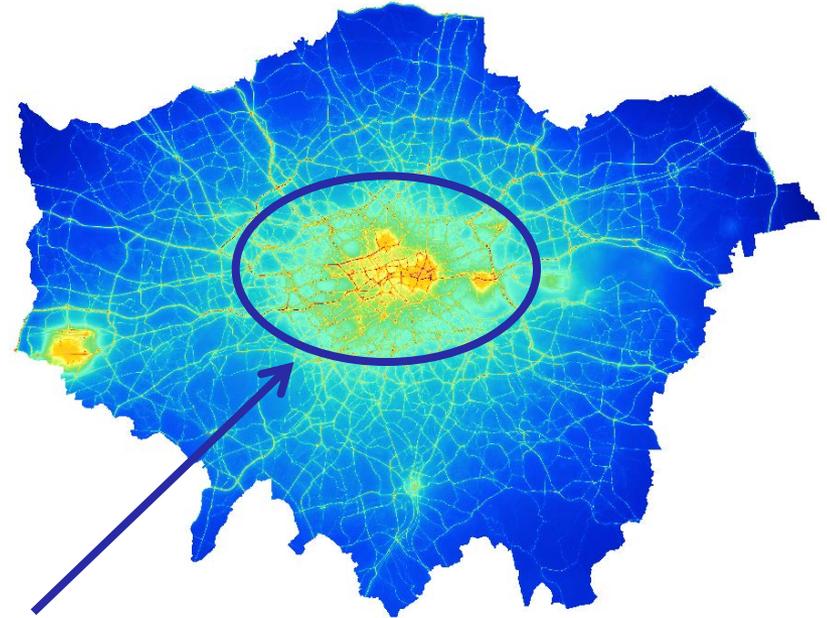


## Refining possible policies



# Refining possible policies

Where will  
the zone  
cover?



## Identifying exceedance and human exposure

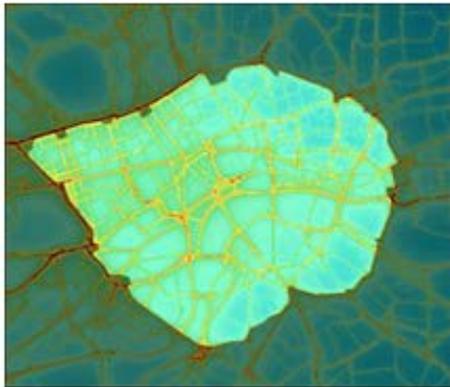
- Central London predicted to remain an air quality focus area beyond 2020
- Greatest amount of public exposure and highest amount of roadside activity occurs in Central London
- Congestion Charge Zone well established with embedded travel behaviour

# Refining possible policies

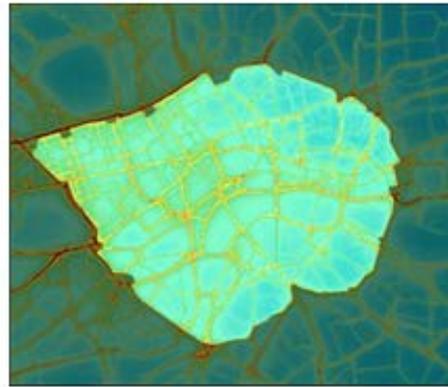
24hrs 7 days a week?  
Or  
Congestion Charge hours?  
7:00 – 18:00 Mon-Fri (exc public  
holidays)

What time  
will it  
operate?

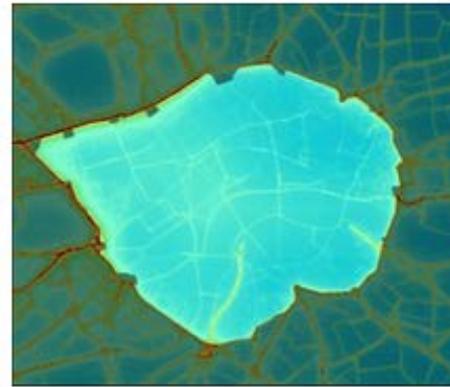
Zero Emission, Charging Hours\*



Euro 6, 24 Hours, 7days\*



Zero Emission, 24 Hours, 7days\*



\*taken from sensitivity scenarios, assumes like-for-like travel behaviour and 100% compliance

# Refining possible policies

## Euro 6/VI

- Next set of standards to be introduced from 2014 starting with heavy vehicles
- Significant improvement on previous standards
  - 70% reduction in emissions for diesel cars compared to Euro 5
  - 80% reduction for HGVs compared to Euro V
- Petrol Euro 4 standard is same as Diesel Euro 6

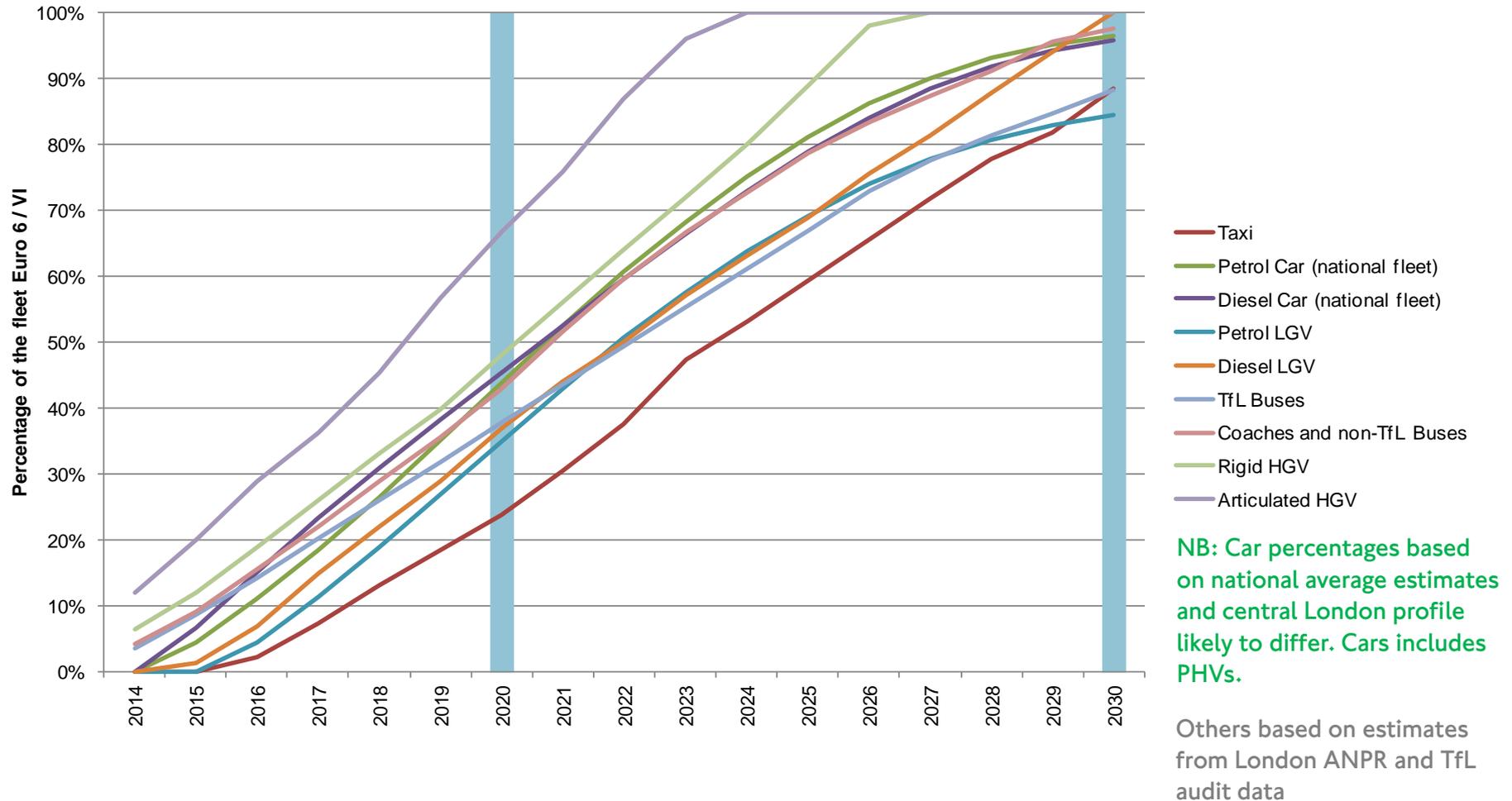
## Euro standards

- Set of emissions based criteria for new vehicles
- Aim to reduce PMs, NO<sub>x</sub> and CO<sub>2</sub>
- Currently new vehicles meet Euro 5 standard (other than motorbikes)
- UK Government focussing on low carbon vehicles especially alternative fuels

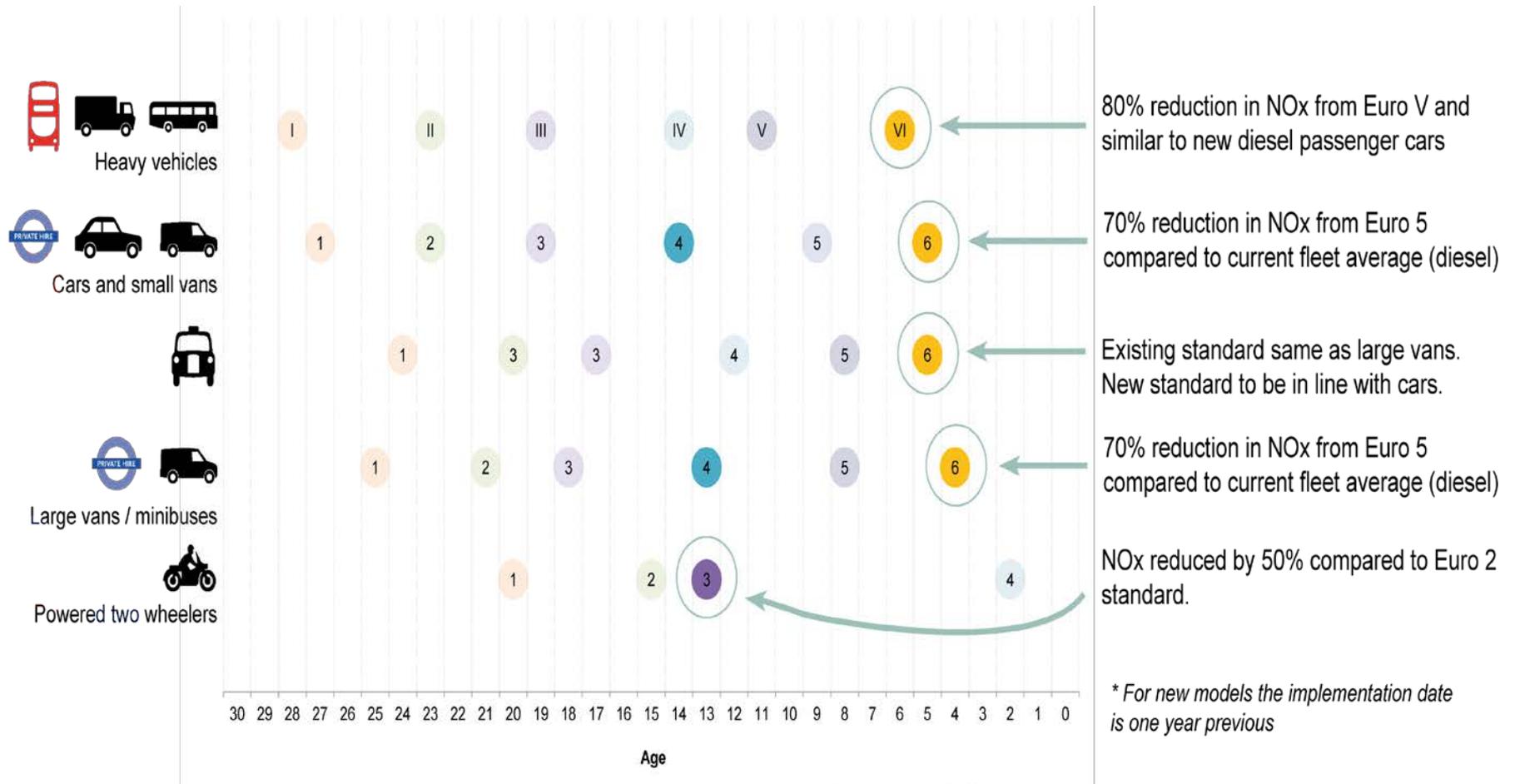
What is Ultra Low?



# Projected uptake of Euro VI vehicles – without intervention



# How old are Euro 6 vehicles in 2020?



**We need to take the age of vehicles into account when considering which policy should apply for each vehicle type**



# What realistically can be achieved?

- TfL only one part of the solution
- How do we get greener vehicles?
- What technology will be available in 2020?
  - Electric?
  - Gas?
  - Hybrid?
- How much will they cost?
- Need to consider...
  - Government
  - Industry
  - Infrastructure



# Refining possible policies

- All types of vehicles being assessed at policy development stage
- Impact on emissions, compliance costs and wider economic impacts are being assessed
- Potential exemptions, mitigations and incentives also being considered

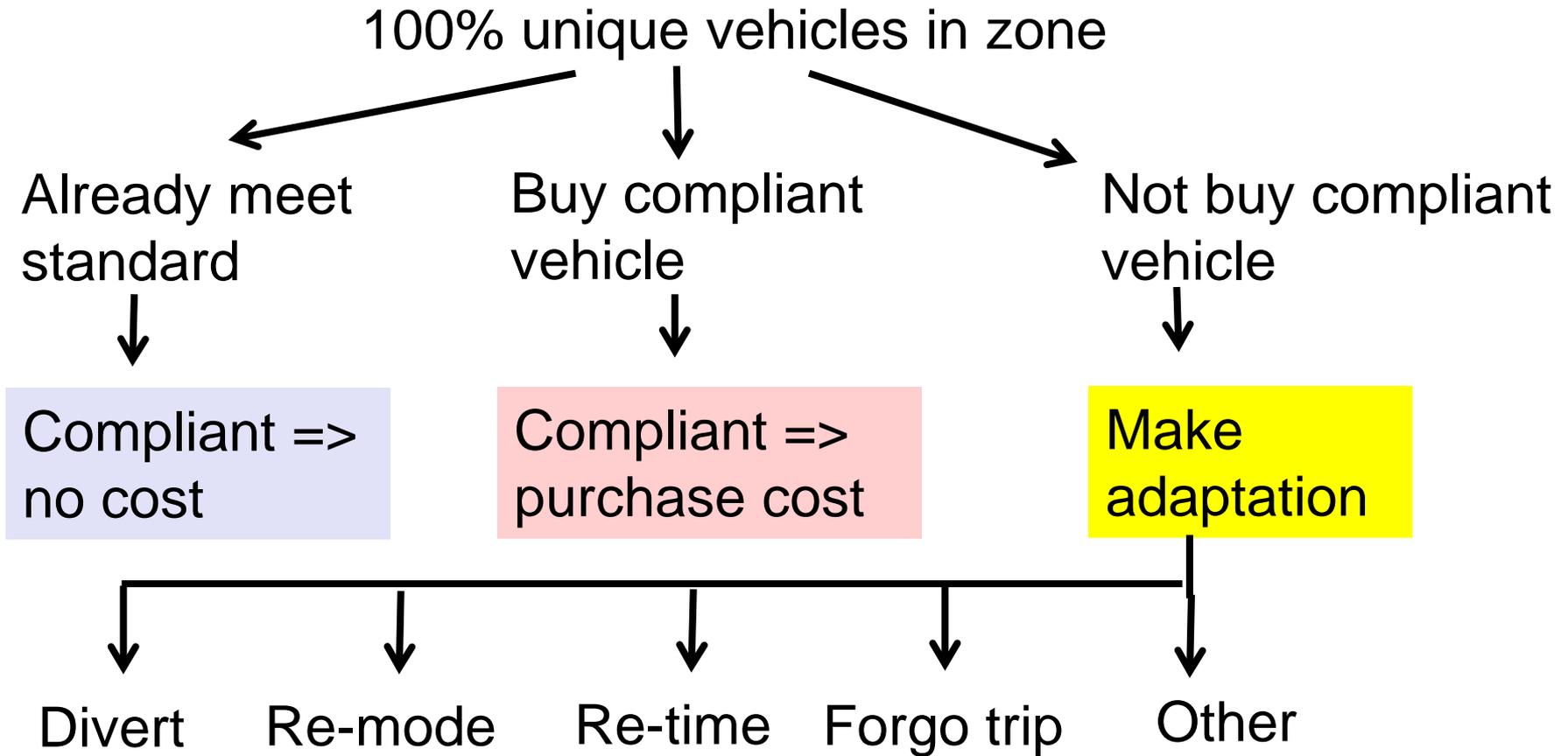
Who will be affected?

## Total number of unique vehicles in the CCZ 24/7 period

	Number of unique vehicles entering at least once a month
Cars/PHV/P2W	800,000
Vans	167,000
HGVs	31,000
Non TfL buses & coaches	16,000
Taxis	21,000 *
Buses	2,700

\* London wide licences

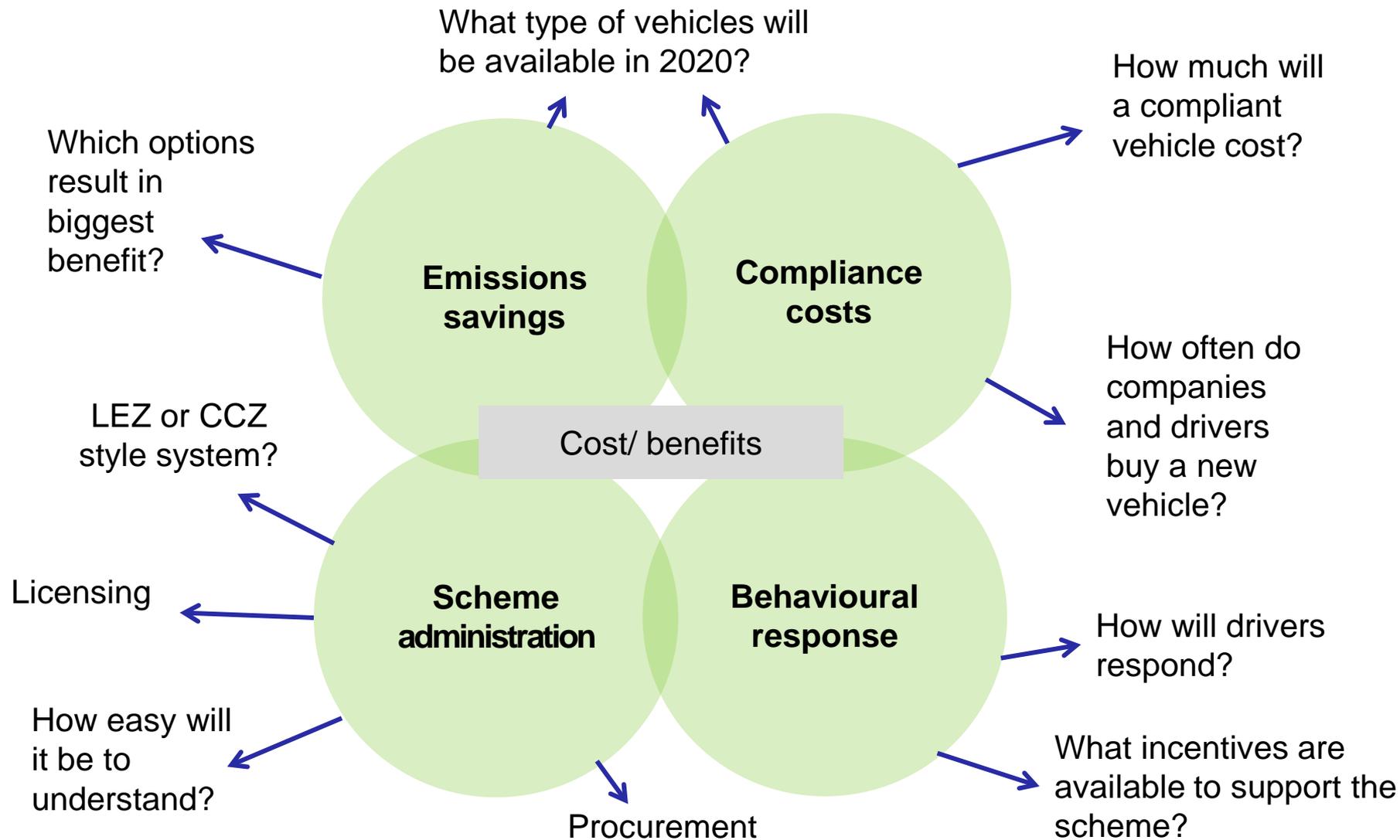
# Pathways to compliance in 2020



Adaptations may lead to less traffic in zone but also less benefits outside zone.  
Adaptations may also incur dis-benefits (eg inconvenience)



# Assessing the options – current stage of development



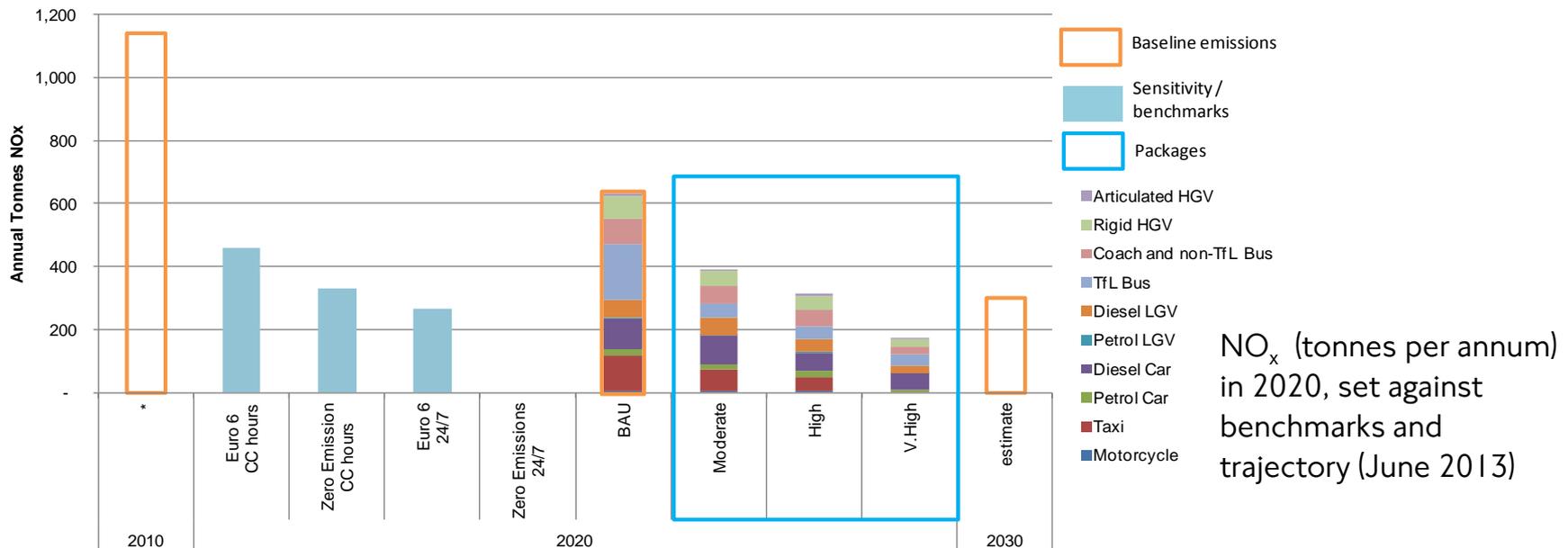
## Refining the Options – Process and Rationale

- Policy options have been sifted again to get more refined options for further analysis.
- Need to balance feasibility, effectiveness and cost of compliance
- Identifying a Moderate, High, Very High policy for each vehicle type. These have then been packaged together to test options
- For each of the packages the following qualitative and quantitative assessment are being considered:
  - Behavioural response
  - Emissions reduction in central London (NO<sub>x</sub> / PM / CO<sub>2</sub>)
  - Reduction in human exposure
  - Stakeholder acceptability
  - Deliverability (including complexity, incl. technology)
  - Cost of compliance for individuals and businesses
  - Economic impact
  - Traffic Impact
  - Promoting PT, walking & cycling



# What we are considering...

- Using the Congestion Charge Zone area
- Mix of different packages identified based on level of ambition for each vehicle type based on:
  - Euro standard or Zero emission?
  - Time of operation of Zone – 24/7 or CCZ hours?
  - Charge level?



\*taken from sensitivity scenarios, assumes like-for-like travel behaviour and 100% compliance



## Next steps

- **June -Dec 2013** Further ULEZ policy development looking at 3 levels of ambition: moderate, high, very high - feasibility assessment, stakeholder engagement, cost of compliance and acceptability
- **December 2013** ULEZ policy options for further consideration to the Mayor

### Subject to Mayoral decision

- **2014** Wider engagement on scheme principles
- **2015** Public consultation on specific ULEZ scheme proposal
- **2020** Scheme implementation



# Questions

1. Which vehicles should be included in a ULEZ and how ambitious should we be with the standards we apply for each vehicle type?

HGVs?                  Vans?      Buses?      Coaches?                  Taxis?      Cars?  
Private Hire Vehicles?      Motorcycles/Powered 2 Wheelers?

2. Is timing important, e.g. congestion charging hours only vs 24/7?
3. Have we got the right area?
4. What is a reasonable cost for compliance for each vehicle type?
5. What more can Government, EU and Boroughs do to encourage the use of low emission vehicles?



For more information please contact:

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Link to the ULEZ briefing to the London Assembly Environment Committee in  
July: <http://www.london.gov.uk/sites/default/files/ULEZ%20scrutiny%20briefing%20-%20July%202013.pdf>

