



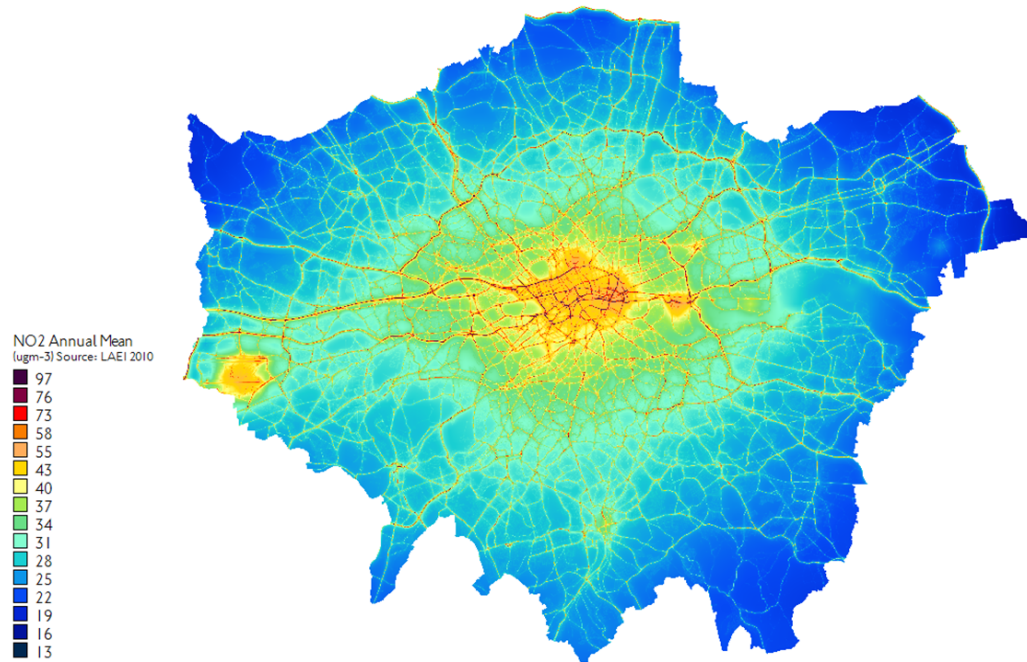
Transport challenges in a growing global city adopting a 'people first' approach to densification and liveable neighbourhoods in London

Ben Kennedy – Urban Mobility Solutions

London – transport challenges

- **Air quality**
- Austerity
- Brexit
- Climate change
- Health and obesity
- Population growth
- Road and transport congestion
- **Safety and security**
- Technological change

NO₂ Annual Mean - 2015



Air quality

- 50% of pollution from road transport
- Approximately 9,000 deaths
- 1 in 10 Londoners under 18 has asthma
- Child born in 2010 will have life shortened by 2 years due to air pollution
- T-charge
- Ultra Low Emission Zone

News › London

'Ring of steel' to be built in the City to protect London from terror attack

SOPHIA SLEIGH, JONATHAN PRYNN | Friday 23 December 2016 13:41 |  60 comments

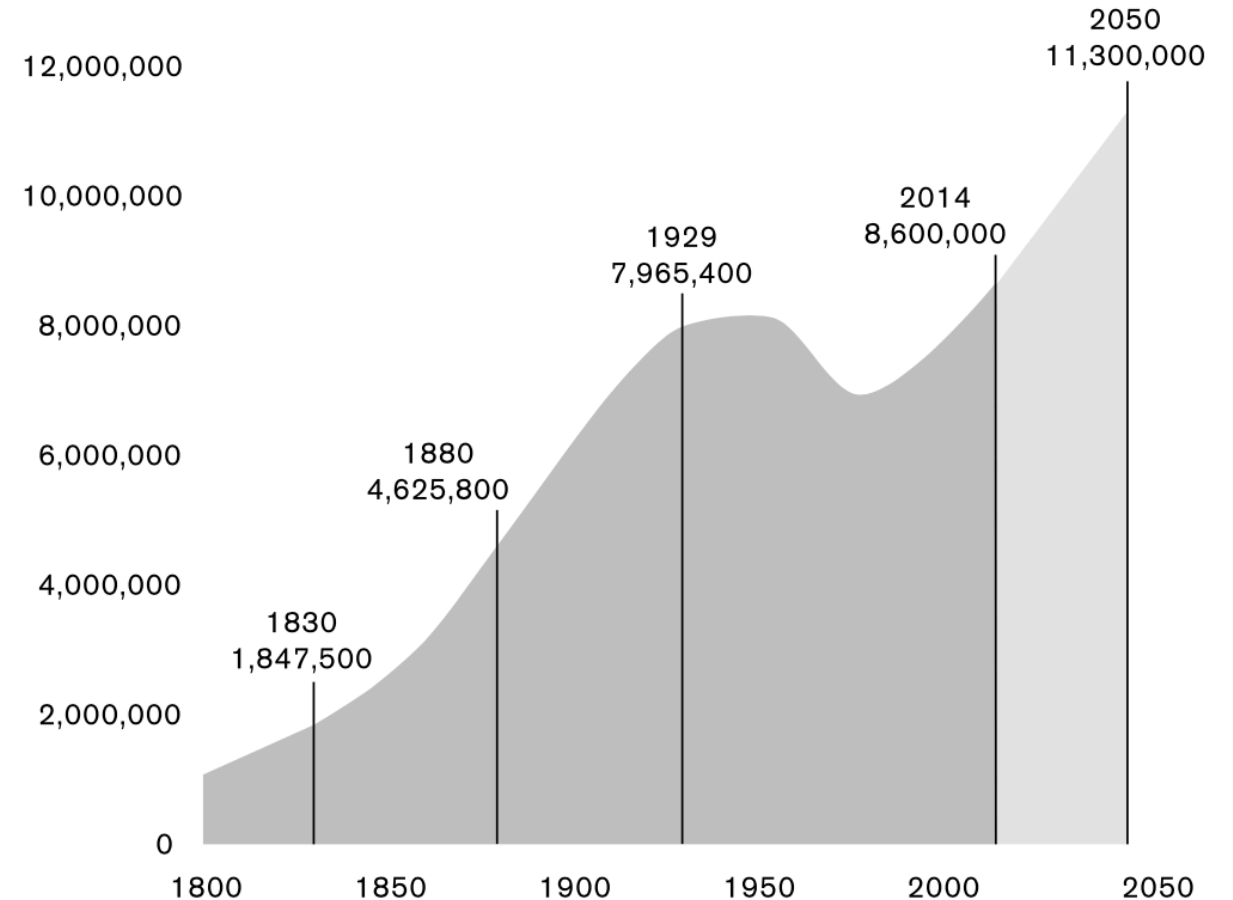


The new normal ?

Population growth

London current population 8.8 million and is projected to increase by 70,000 every year, reaching 10.5 million in 2041. This means that just to meet demand, at least 66,000 new homes need to be built – along with space for tens of thousands of new jobs – every single year.

(source: Draft London Plan December 2017)

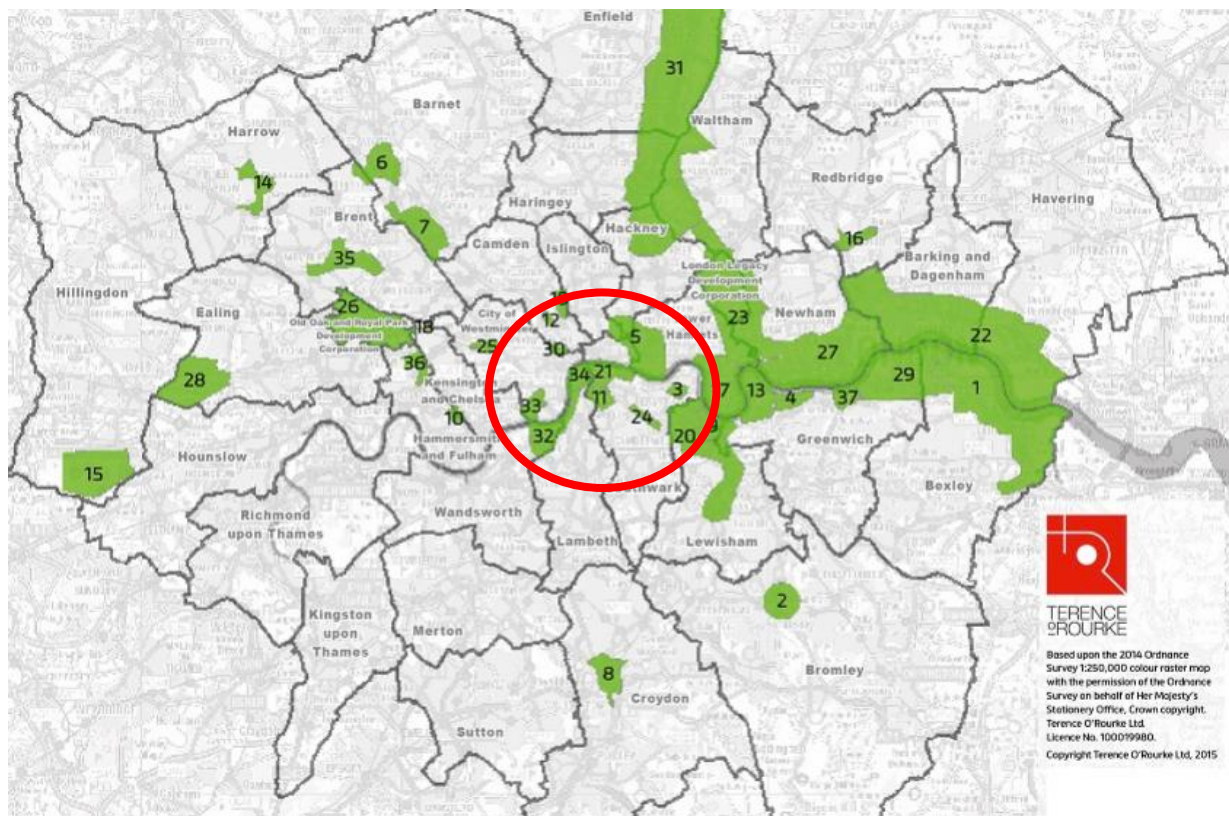


Source: Mayor's Design Advisory Group – Growing London



Densification of London – delivering good growth

Growth & densification occurring across London



1 Paddington OA

🏠 1,000
🏢 13,000

2 Victoria OA

🏠 1,000
🏢 4,000

3 Tottenham Court Road OA

🏠 300
🏢 6,000

4 Euston OA

🏠 2,800-3,800
🏢 16,500

5 King's Cross OA

🏠 1,000
🏢 48,000

6 City Fringe/ Tech City OA

🏠 15,500
🏢 50,500

7 Vauxhall Nine Elms Battersea OA

🏠 18,500
🏢 18,500

8 Waterloo OA

🏠 1,500
🏢 6,000

9 London Bridge Bankside OA

🏠 4,000
🏢 5,500

10 Elephant & Castle OA

🏠 5,000
🏢 10,000

11 Canada Water OA

🏠 5,000
🏢 20,000

12 Isle of Dogs OA

🏠 29,000
🏢 110,000

THE LONDON PLAN

THE SPATIAL DEVELOPMENT
STRATEGY FOR GREATER LONDON
DRAFT FOR PUBLIC CONSULTATION

DECEMBER 2017



Transport principles of delivering good growth:

- Good access to public transport
- High-density, mixed use developments
- People choose to walk and cycle
- Inclusive, accessible design
- Carbon-free travel
- Efficient freight
- Car-free development in all accessible areas
- Car-lite development in other areas
- All parking spaces to be electric vehicle enabled
- Car sharing to reduce the need for parking
- Well located and accessible cycle parking

Mayor of London
funded proposals
for delivering
liveable
neighbourhoods

- Healthy Streets Toolkit
- Liveable Neighbourhood Schemes
- Low Emission Neighbourhoods

Healthy Streets Indicators



Pedestrians from all walks of life

London's streets should be welcoming places for everyone to walk, spend time in and engage in community life.

People choose to walk, cycle and use public transport

Walking and cycling are the healthiest and most sustainable ways to travel, either for whole trips or as part of longer journeys on public transport. A successful transport system encourages and enables more people to walk and cycle more often. This will only happen if we reduce the volume and dominance of motor traffic and improve the experience of being on our streets.

Clean air

Improving air quality delivers benefits for everyone and reduces unfair health inequalities.

People feel safe

The whole community should feel comfortable and safe on our streets at all times. People should not feel worried about road danger or experience threats to their personal safety.

Not too noisy

Reducing the noise impacts of motor traffic will directly benefit health, improve the ambience of street environments and encourage active travel and human interaction.

Easy to cross

Making streets easier to cross is important to encourage more walking and to connect communities. People prefer direct routes and being able to cross streets at their convenience. Physical barriers and fast moving or heavy traffic can make streets difficult to cross.

Places to stop and rest

A lack of resting places can limit mobility for certain groups of people. Ensuring there are places to stop and rest benefits everyone, including local businesses, as people will be more willing to visit, spend time in, or meet other people on our streets.

Shade and shelter

Providing shade and shelter from high winds, heavy rain and direct sun enables everybody to use our streets, whatever the weather.

People feel relaxed

A wider range of people will choose to walk or cycle if our streets are not dominated by motorised traffic, and if pavements and cycle paths are not overcrowded, dirty, cluttered or in disrepair.

Things to see and do

People are more likely to use our streets when their journey is interesting and stimulating, with attractive views, buildings, planting and street art and where other people are using the street. They will be less dependent on cars if the shops and services they need are within short distances so they do not need to drive to get to them.

Low Emission Neighbourhood – City of London

Objectives:

- Act as a test bed to pilot initiatives
- Ambitious, comprehensive and transformative measures
- Behaviour change, incentivisation, restrictions and enforcement
- Provision of the necessary infrastructure required to support a genuinely low emission neighbourhood.

Proposals:

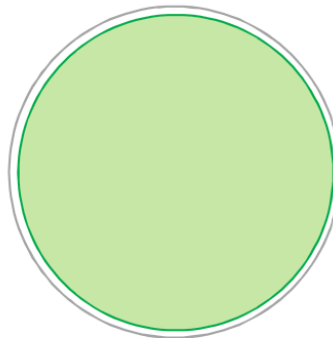
- Access restrictions to vehicles based upon emissions
- Micro-depots and cargo bike delivery hubs
- Urban realm greening and parklets
- Electric vehicle charging infrastructure
- Delivery and loading restrictions
- Green taxi ranks



Emissions based access restriction scenarios for the City of London

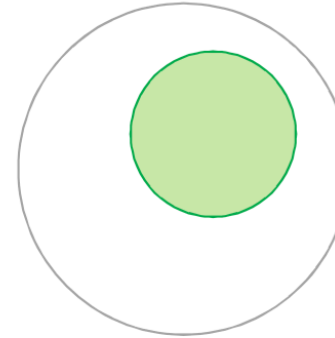
Zero Emission Zones – Scenarios for Implementation

Four broad categories of ZEZ were identified:



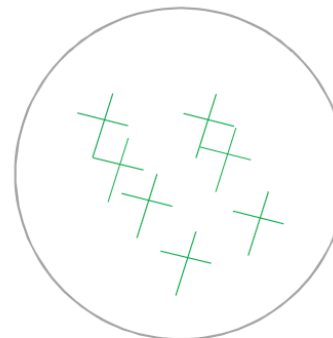
Borough Wide Zero Emission Zone

A City of London wide Zero Emission Zone – with access restrictions or tolls for all non-ultra low emission vehicles. This would deliver very effectively against the headline objectives. A single larger ZEZ area is also likely to more quickly become recognised and understood amongst the general public, as opposed to a small area or more disparate series of zones. A larger ZEZ would however entail greater vehicle displacements, and require the most extensive package of mitigating measures.



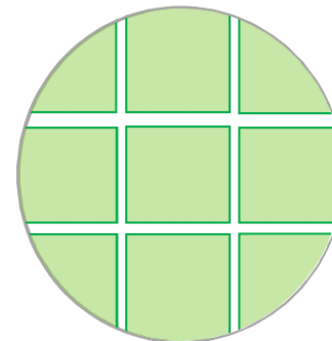
Focused Zero Emission Zone

A focused Zero Emission Zone – covering targeted areas of high pedestrian footfall and cyclist activity, such as the St Pauls/ Guildhall/ Bank area, at the heart of the City. An approach which enables the scheme to focus in on the areas which will deliver the greatest benefits in terms of reduced exposure, whilst limiting the impacts of displaced traffic and aiding deliverability. A smaller ZEZ would though of course deliver in a more limited way against the headline objectives.



Widespread Zero Emission Streets/Neighbourhoods

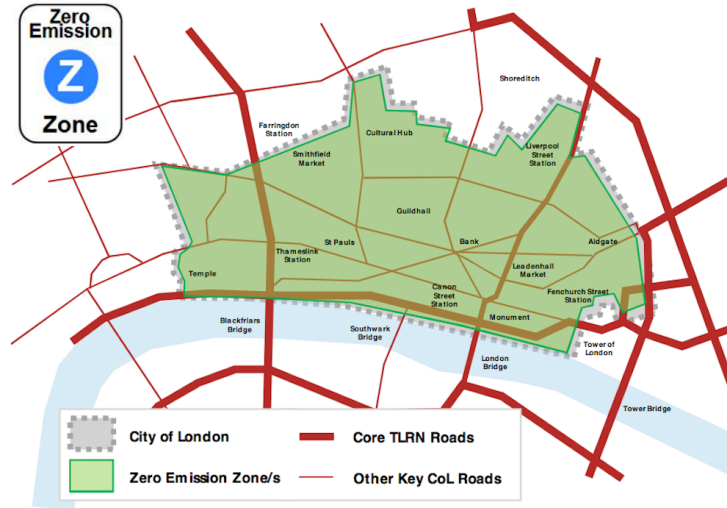
Widespread deployment of localised Zero Emission Streets (i.e. as proposed for Beech Street) across the borough. This approach would enable schemes to be designed to cater more specifically for the context of each street, and would tie in with 'Pedestrian Priority Streets' concept emerging in Europe, and liveable neighbourhoods in London. A smaller ZEZ would though of course deliver in a more limited way against the headline objectives. Whilst implementing each street/ cluster of streets in isolation would be an inefficient way of scaling up ZEZs beyond a certain point. Additionally they may not merit the investment in mitigation measures required.



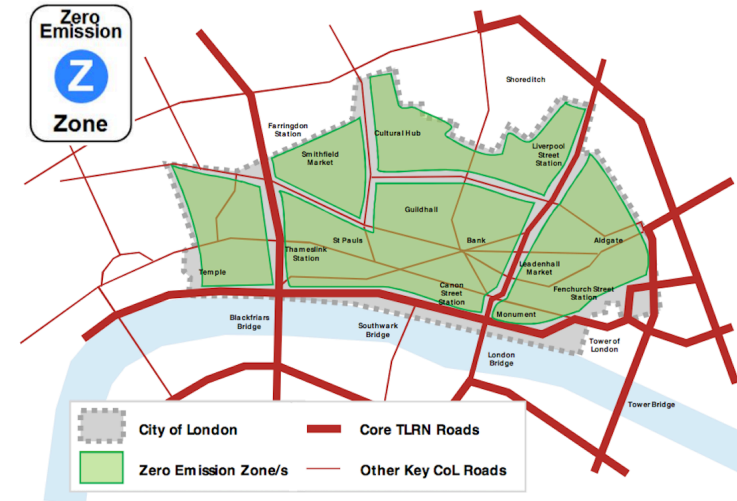
"Super Blocks" Zero Emission Zones within highway network

"Super blocks" are a concept for traffic reduction being explored in Barcelona. In the context of ZEZs, they could take the form of restrictions or tolls for all non-ultra low emission vehicles except on London Distributor Roads (LDRs), Borough Distributor Roads (BDRs) and Local Distributor Roads (LoDRs). This approach would lessen the impact on the wider road network by maintaining access to key routes, whilst fostering clean pedestrian friendly areas across a series of zones. In effect these would form a series of smaller ZEZs, which deliver in a more limited way against the headline objectives.

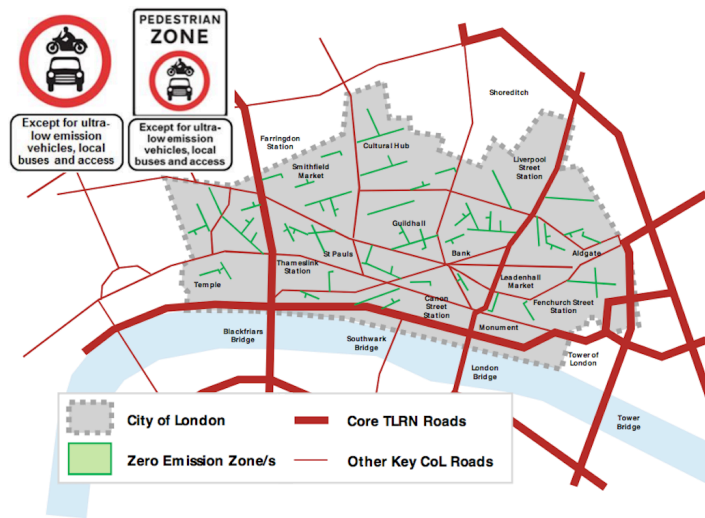
1) Whole borough restrictions



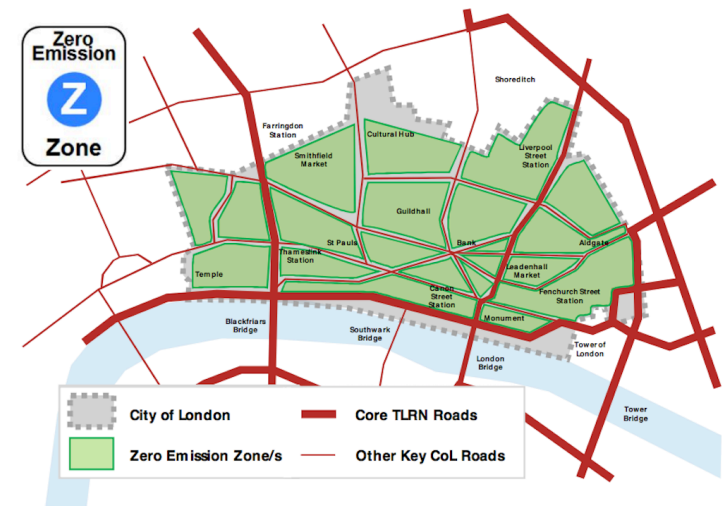
2) Area restrictions exempting main roads



3) Localised individual street restrictions



4) Super Block restrictions



Low Emission Zone Option Comparisons

Option Scenarios	1	2	3	4	5	6	7	8	9	10		11	12	13	Multi-Criteria Assessment	
	Likely effectiveness in achieving objective			Deliverability		Cost	Risk	Health & Safety	Wider Impacts				Flexibility/ Scope for up-scaling			
	Air quality	Promotion of ULEV uptake, particularly amongst taxis	Health and welfare improvements, reduced exposure	Timescales, consents, permissions	Acceptability to stakeholders – inconvenience	Capital, operation and maintenance	Technological maturity, technical obsolescence, legal issues		Impact on the transport network performance	Air quality impacts of displaced traffic	Fit with wider transport strategies/ schemes	Streetscene impacts	Flexibility/ versatility	Scope for up-scaling	Unweighted Score	Weighted Score
1a. CoL wide ZEZ - ULEVs only	9	10	10	1	2	1	3	5	1	3	3	9	5	9	71.0	54.0
1b. CoL wide ZEZ - ULEVs only except on LDRs/ BDRs	8	9	9	3	3	3	4	5	2	4	4	8	5	9	76.0	56.8
2a. St Pauls/ Guildhall/ Bank ZEZ - ULEVs only	7	8	8	4	5	4	5	5	3	5	5	7	5	9	80.0	59.0
2b. St Pauls/ Guildhall/ Bank ZEZ + Neighbouring ZEZ - ULEVs only except on LDRs/ BDRs	8	9	9	3	4	3	4	5	2	5	4	8	5	9	78.0	58.5
3. Localised ULEV only Streets	6	7	7	6	6	4	5	5	4	6	5	6	4	6	77.0	59.0
4. "Super Blocks" CoL wide ZEZ - ULEVs only except on LDRs/ BDRs/ LoDRs	7	8	8	4	5	3	4	5	3	6	5	8	5	9	80.0	58.8