NATIONAL INFRASTRUCTURE COMMISSION

Cities knowledge sharing event: Urban Freight

20 February 2020

@natinfracom
#ukinfra2050

Bridget Rosewell

NIC Commissioner

NATIONAL INFRASTRUCTURE COMMISSION

David Elvy

Department for Transport

NATIONAL INFRASTRUCTURE COMMISSION

Department for Transport

Future of UK Freight

National Infrastructure Commission – Cities: 19 February 2020

David Elvy

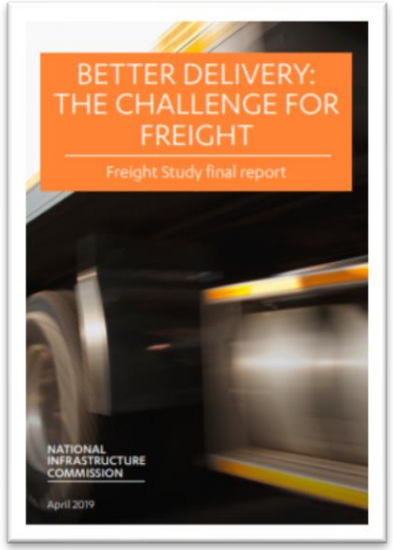
Head, UK Future of Freight programme

Futureofukfreight@dft.gov.uk

“Gradually, then suddenly.”

Department for Transport

National Infrastructure Commission: Better Delivery – the challenge for freight.



1) Decarbonisation of road and rail freight by 2040.

2) A new status for freight - establishment of a government and industry Freight Council.

3) Better land use planning driven by improved data provision and standardisation to embed freight into development plans and city infrastructure planning.

Government is “freight blind”.

Land use

Consumer behaviour

Congestion

Air Quality

Technology

Planning Policy

Infrastructure investment

Decarbonise

Department for Transport

Government has traditionally focused on each mode but future challenges and opportunities for freight drive a whole-system approach. A Future of Freight strategy

Tech

Centre for Connected & Autonomous Vehicles

Office for Low Emission Vehicles

Decarbonisation

Trade

Department for Transport

Scope and themes to inform our work

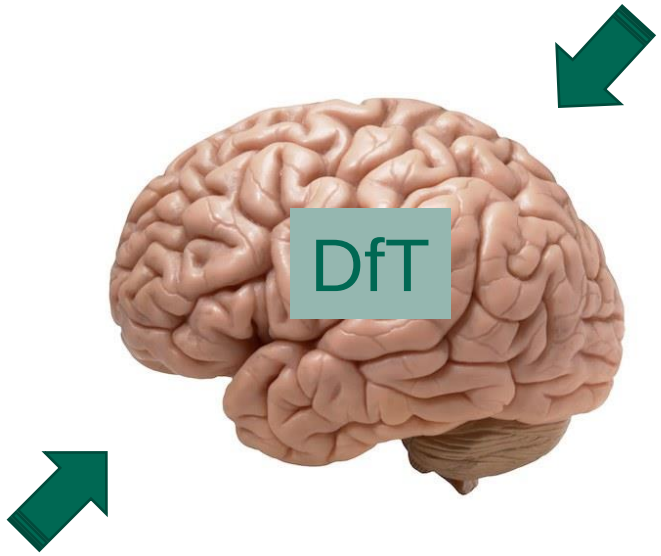
A well-functioning market for freight which serves the interests of its customers and which supports the delivery of the government's wider societal, environmental and economic objectives.

Geospatial and international	Global trade trends	Trade policy	Population
Capacity and Infrastructure	Road, rail, ports	Warehousing and consolidation	Kerbside management
Technology and Innovation	Connected	Distributed ledger	Automation
Business models and consumer behaviour	E-commerce	Last mile	Sharing models
Decarbonisation and environment	Transport De-carbonisation	Air quality	Noise

Department for Transport

Manage Ambition: Freight is a vast landscape and one strategy cannot direct it all

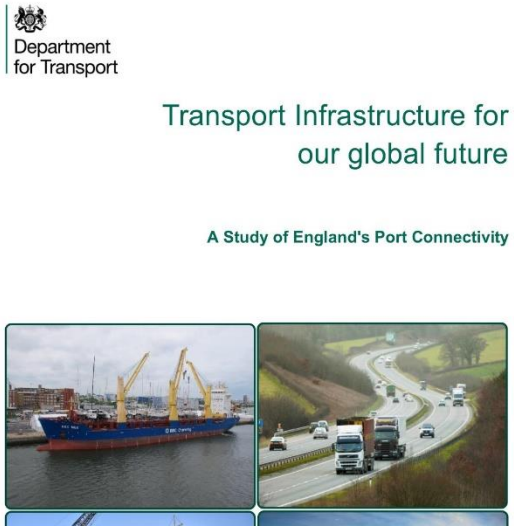
Rt. Hon. Grant Shapps MP
Secretary of State for Transport

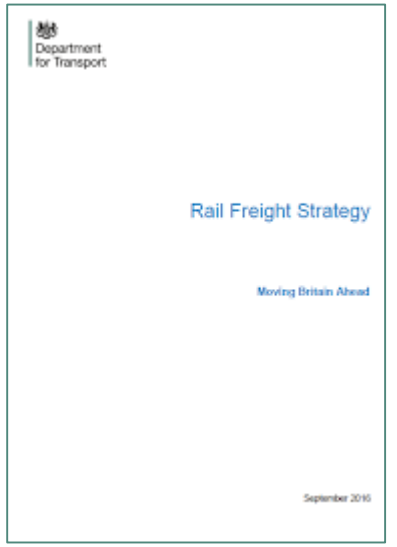


Bernadette Kelly CB
Permanent Secretary
Department for Transport

Department for Transport

Manage Ambition: Complement and build on work already undertaken





The Road to Zero

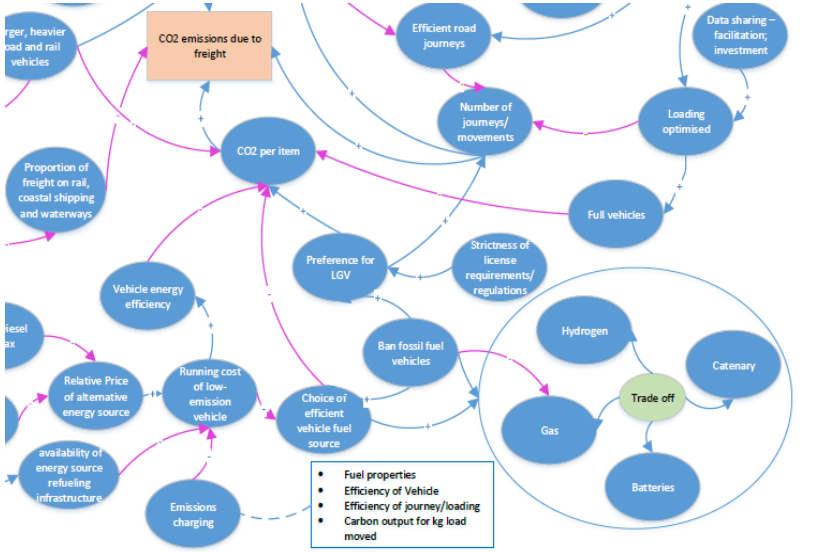
Next steps towards cleaner road transport and delivering our Industrial Strategy

And work underway:

- Williams Rail Review
- Aviation Strategy 2050

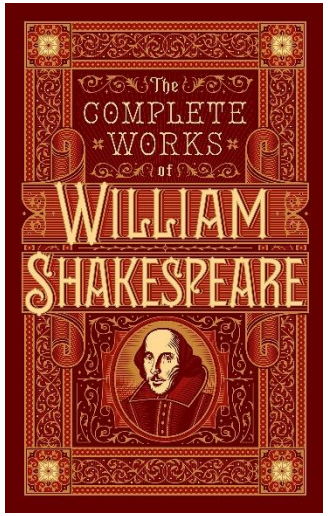
Department for Transport

We have made some progress building the foundations of a strategy



Systems Thinking

Update to planning policy guidance.



Literature Review

The Rise of the Giants

- Large tech companies use their scale and customer proximity to expand further into retail banking
- They exploit their digital expertise to make compelling customer experiences with a low cost base
- They take significant market share in key markets

Status Quo

- PSD2 and the CMA are launched with a very limited impact amid low customer uptake
- The value propositions are not compelling enough to encourage users to adopt beyond niche levels
- The banking value chain remains unchanged with a limited impact

Retail Revolution

- Retailers use PSD2 and open banking to create value for their group
- They vertically integrate financial services into their store offerings without holding the balances
- They use loyalty schemes and targeted marketing to increase sales, boost margins, and improve performance

Banking Dominance

- The retail banks use PSD2 and Open Banking to capture value back from NIM compression and loss of interchange
- They build their own payment schemes and integrate directly with the largest merchants
- They leverage customer's trust to compete and develop 'digital ready' products and services

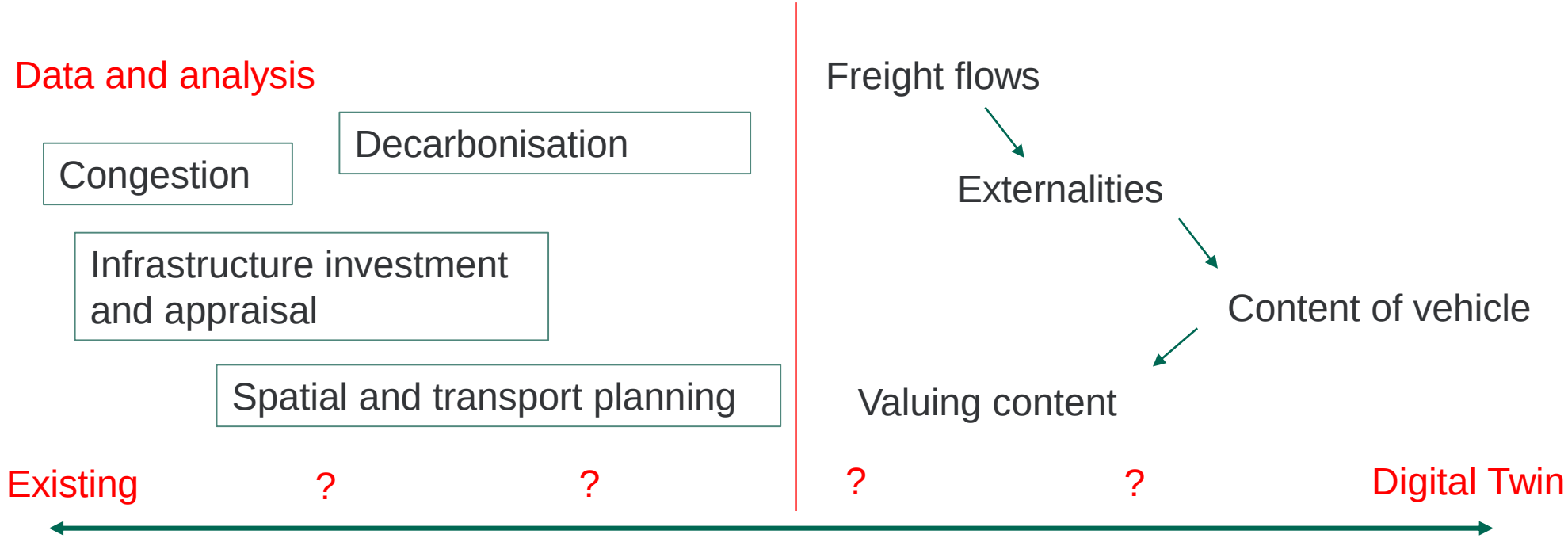
Futures Scenarios

And: Discovery programme for a freight mapping tool.

And: Increasing our stakeholder engagement.

Department for Transport

What should we focus on? What do you need from us?



Next steps:

- Continue to engage across government, industry, academia and delivery bodies.
- Identify priorities, including agreeing response to NIC recommendations.
- Propose and agree with Ministers timescales and approach to strategy

Questions and discussion

Session 1

Planning for freight effectively: maximising use of existing capacity within cities

NATIONAL INFRASTRUCTURE COMMISSION

Thomas Parker

City of London Corporation

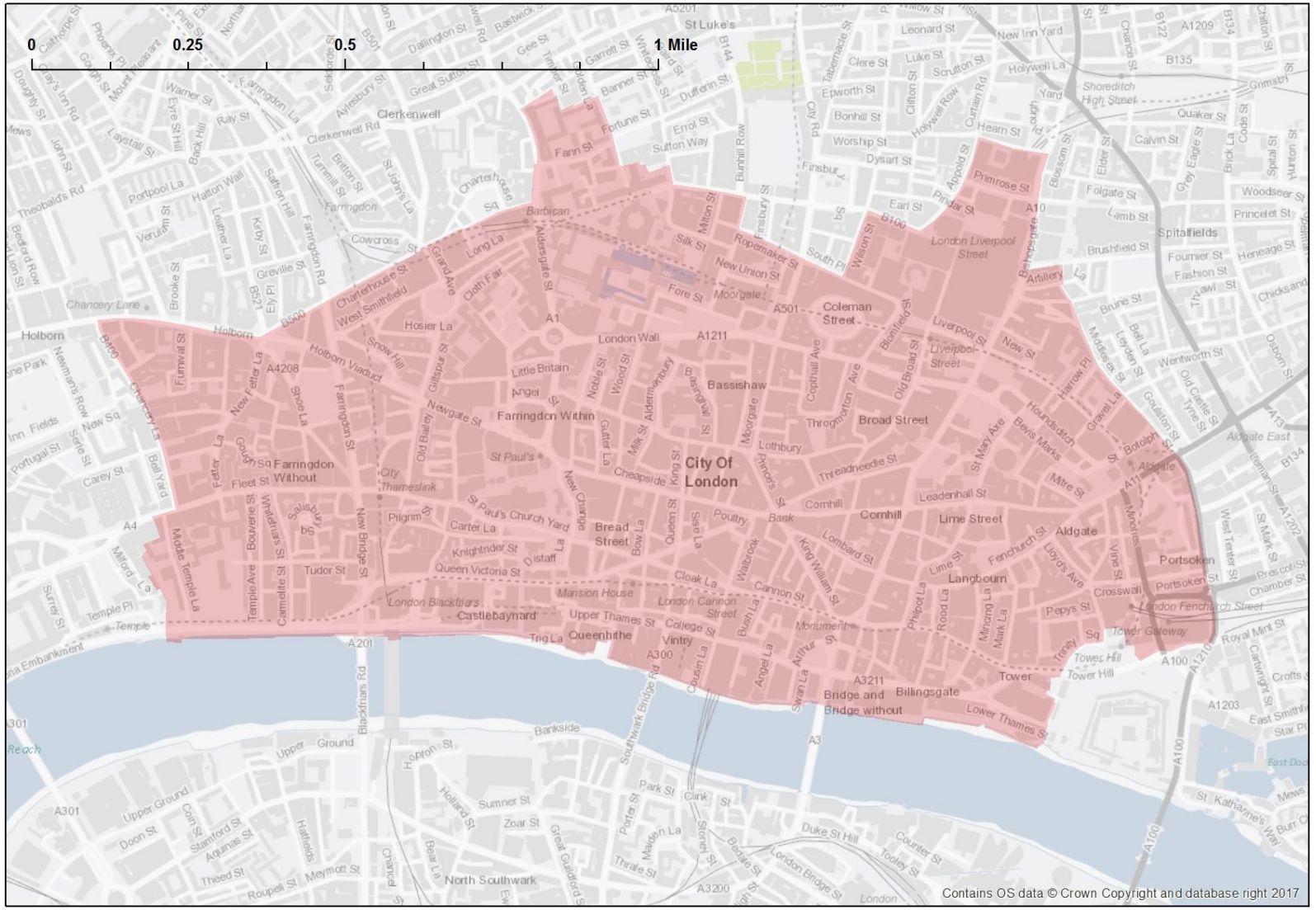
NATIONAL INFRASTRUCTURE COMMISSION

City of London

Freight in the Square Mile – National Infrastructure Commission 4th February 2020

Thomas Parker – Senior Strategic Transportation Officer

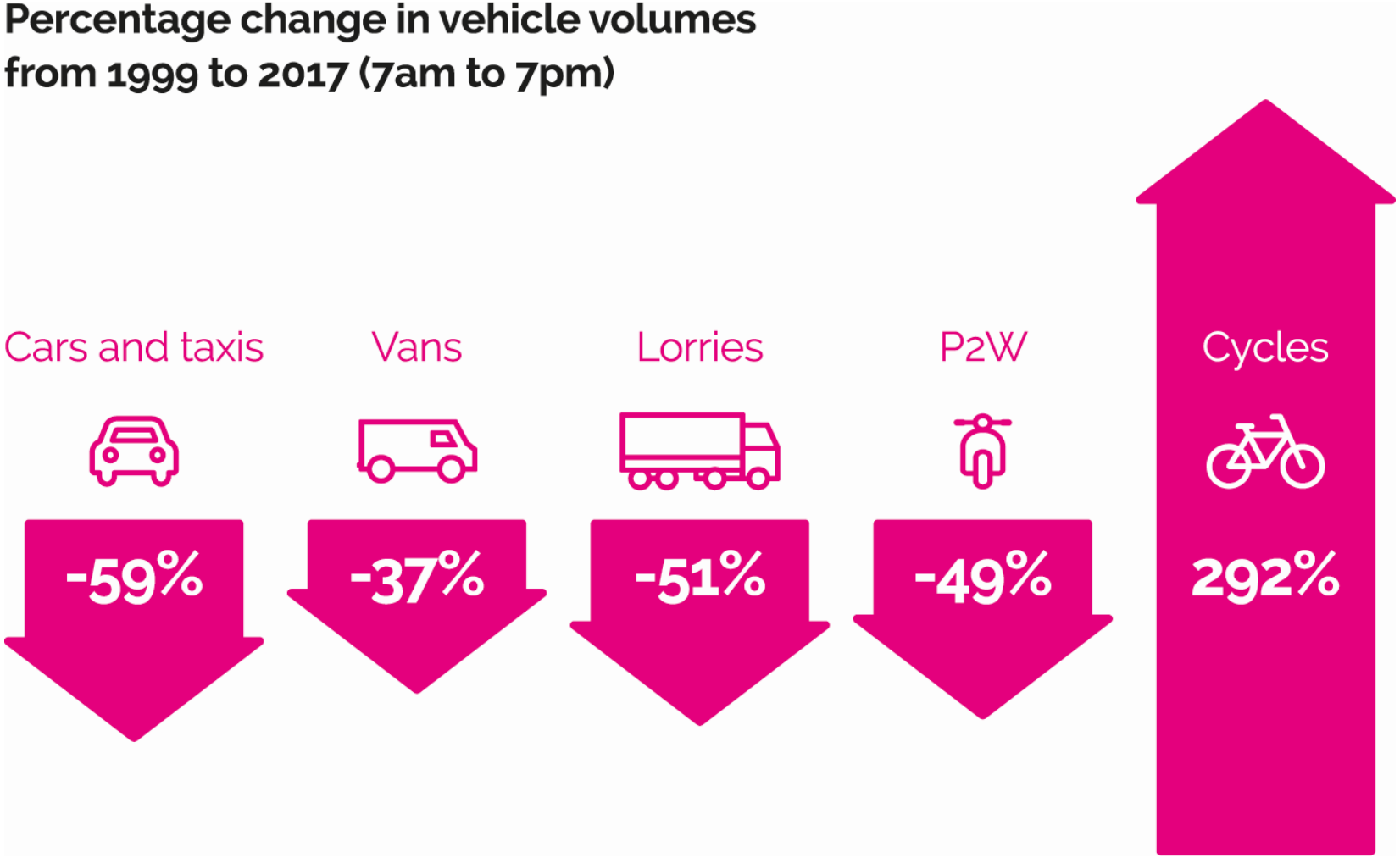
City of London Context



City of London Context

- Only **8000** residents
- Over **550,000** people are employed in the Square Mile
- Huge tidal flow of people, goods and services each day into the City
- Medieval street arrangement

Traffic in the City

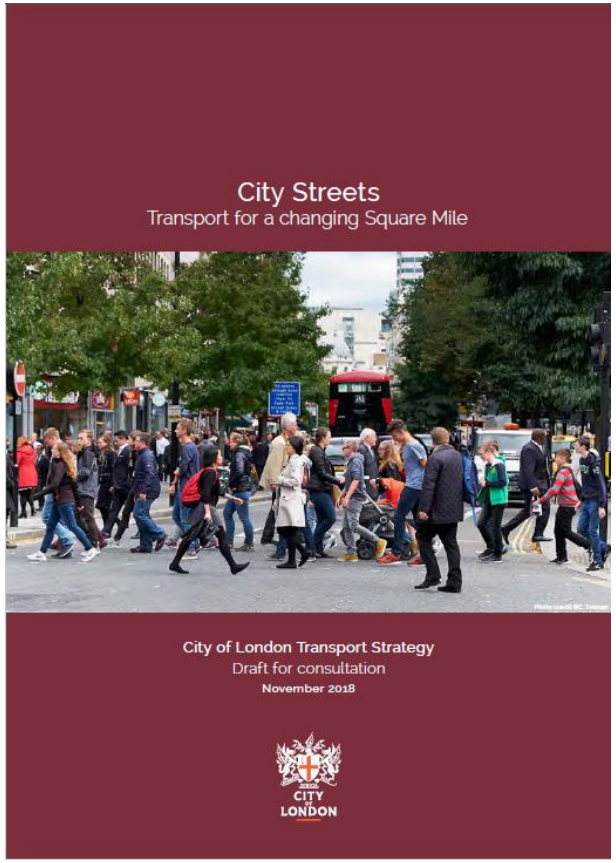


City of London

CITY OF LONDON

City of London Transport Strategy

- The City of London Corporation has developed a long-term Transport Strategy for the Square Mile.
- This outlines how, over the next 25-years, the use and management of the City's streets will change and how connections to the City should be improved.



Transport Strategy – Key Deliverables

- **Prioritise** the needs of people walking,
- **Significantly reduce** motor traffic, including the number of delivery and servicing vehicles in the Square Mile
- **Eliminate death and serious injury** from City Streets
- Enable more **trips by cycle** by making cycling safer and more pleasant
- **Improve air quality** and reduce noise by encouraging and enabling the switch to zero emission capable vehicles

Reduce the number of freight vehicles in the Square Mile

- We will reduce the number of motorised freight vehicles by **15% by 2030 and 30% by 2044.**
- We will reduce peak period motorised freight vehicles by **50% by 2030 and 90% by 2044.**

- Consolidation
- Retiming
- Last Mile Logistics Hubs
- The River
- Sustainable Servicing

Last Mile Logistics Hubs

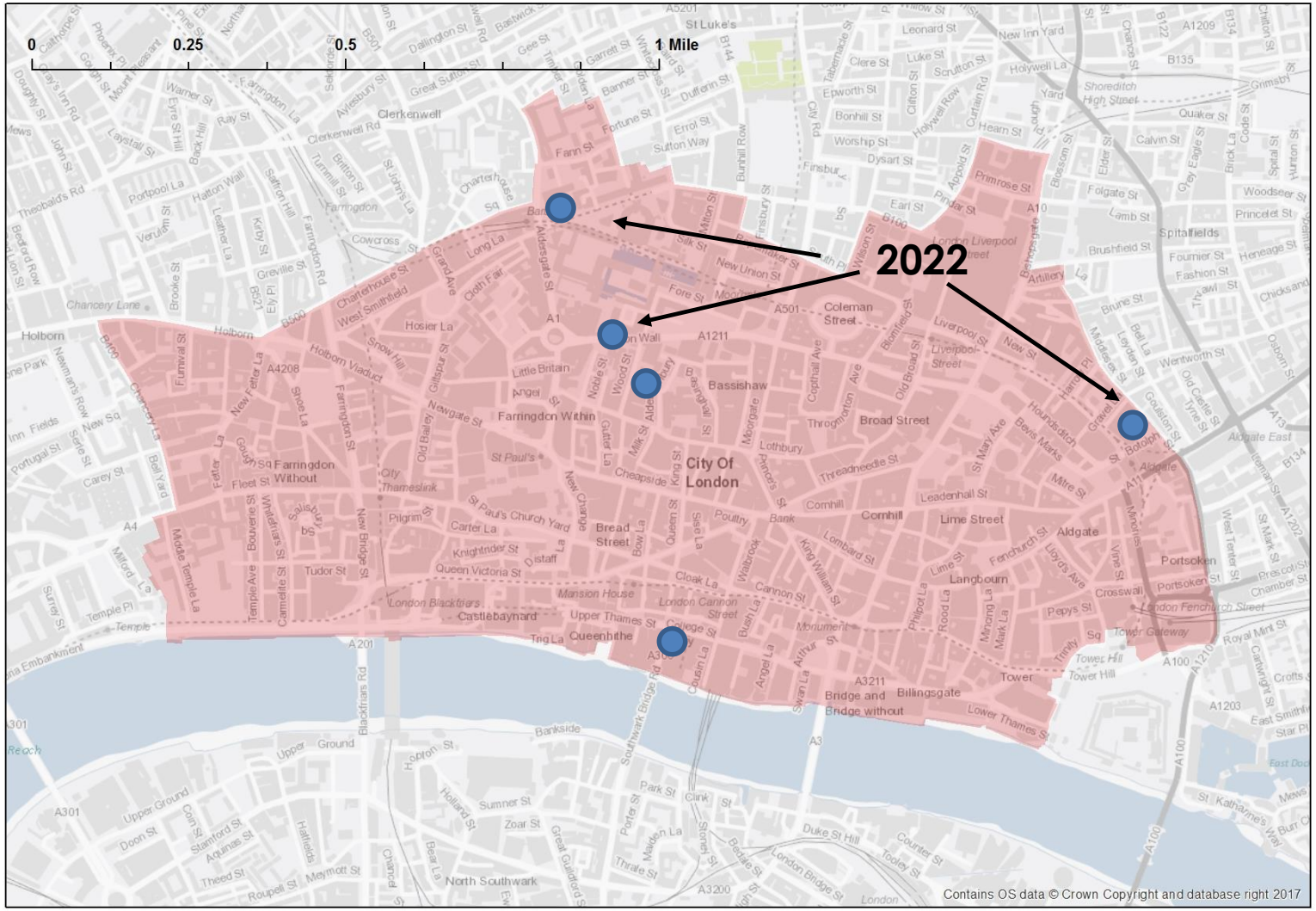
City of London

CITY OF LONDON

Last Mile Logistics Hubs

- We will enable more deliveries within the Square Mile to be made by cargo cycles, on foot and by small electric vehicles by:
  - Delivering two last mile logistic hubs in underutilised City Corporation assets by 2022. A further three hubs will be delivered by 2025.
  - Establishing additional last mile logistics hubs if appropriate underutilised assets are identified.
  - Supporting courier firms through release of spaces for cargo cycle parking.
  - Exploring opportunities to acquire new sites within or adjacent to the Square Mile for last mile logistic hubs.
  - Working with developers and land owners to integrate last mile logistic hubs as part of major City developments

Last Mile Sites



Thank you

Natalie Chapman

Freight Transport Association
(no slides)

NATIONAL
INFRASTRUCTURE
COMMISSION

Ion Fletcher

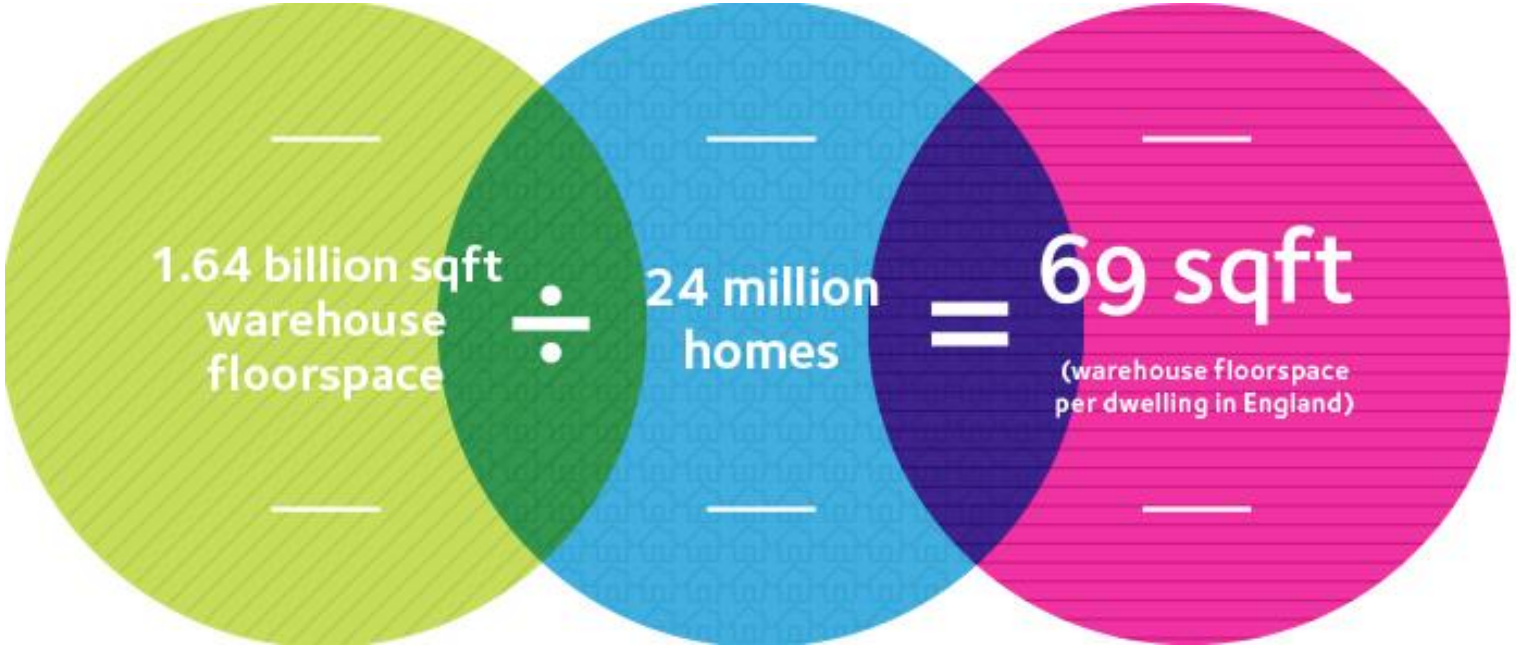
British Property Federation

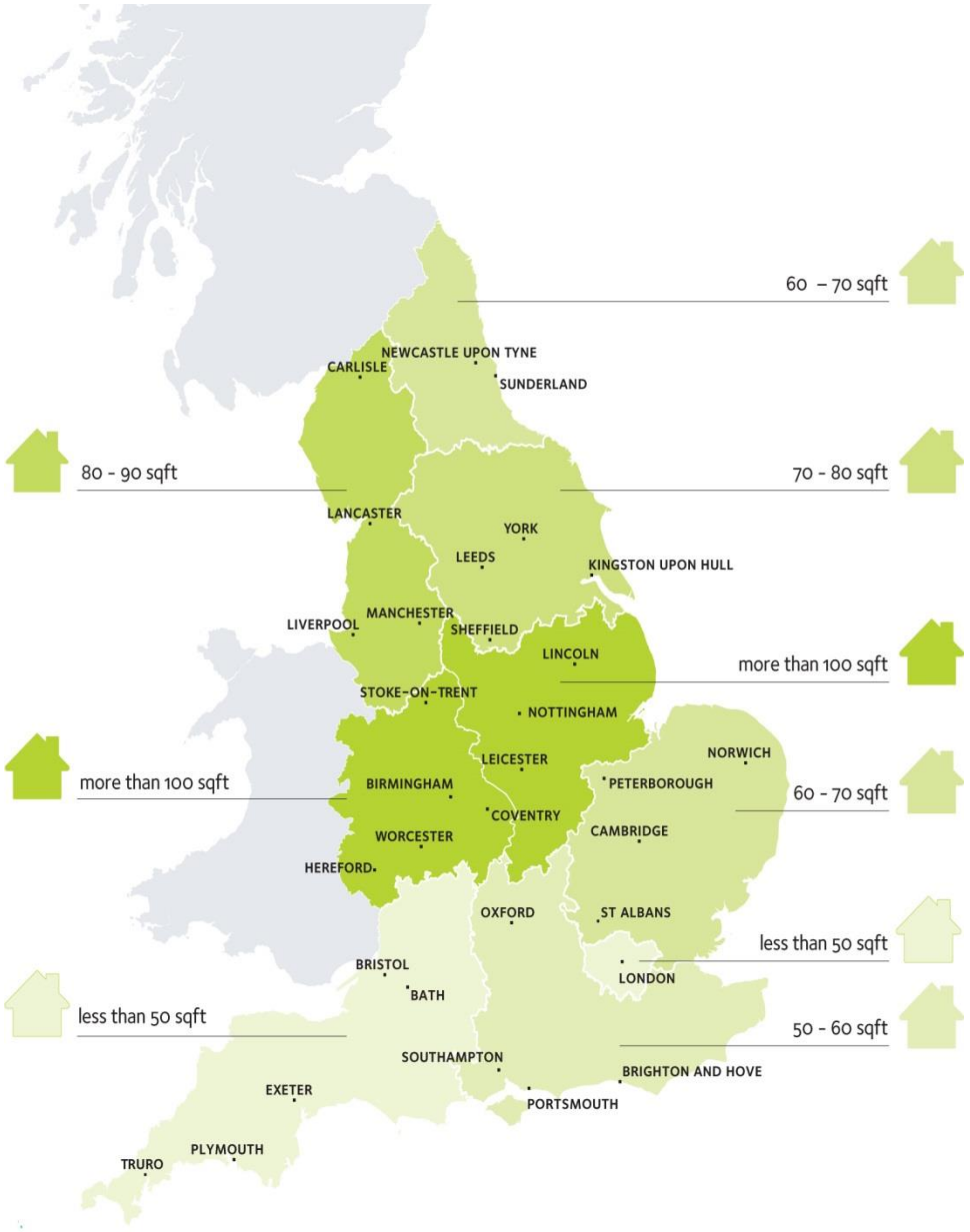
NATIONAL INFRASTRUCTURE COMMISSION

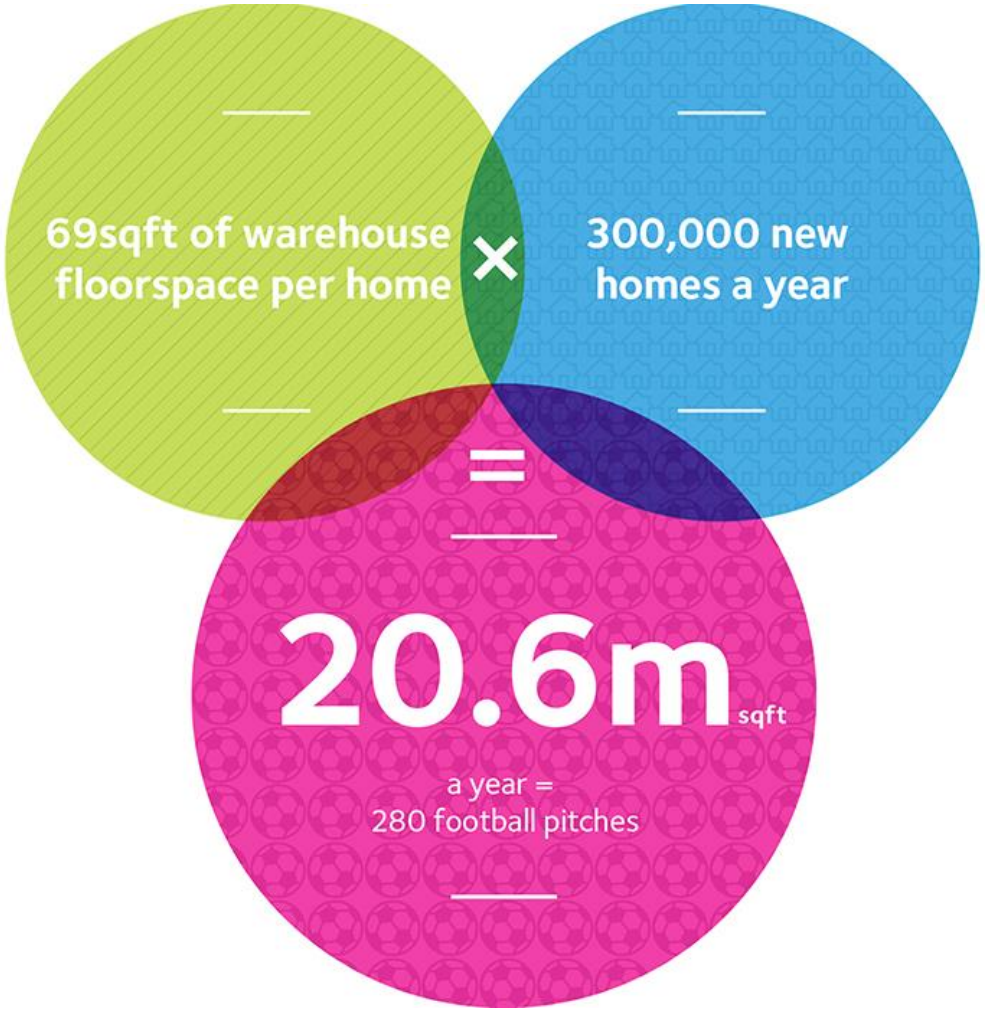
Homes and warehouses

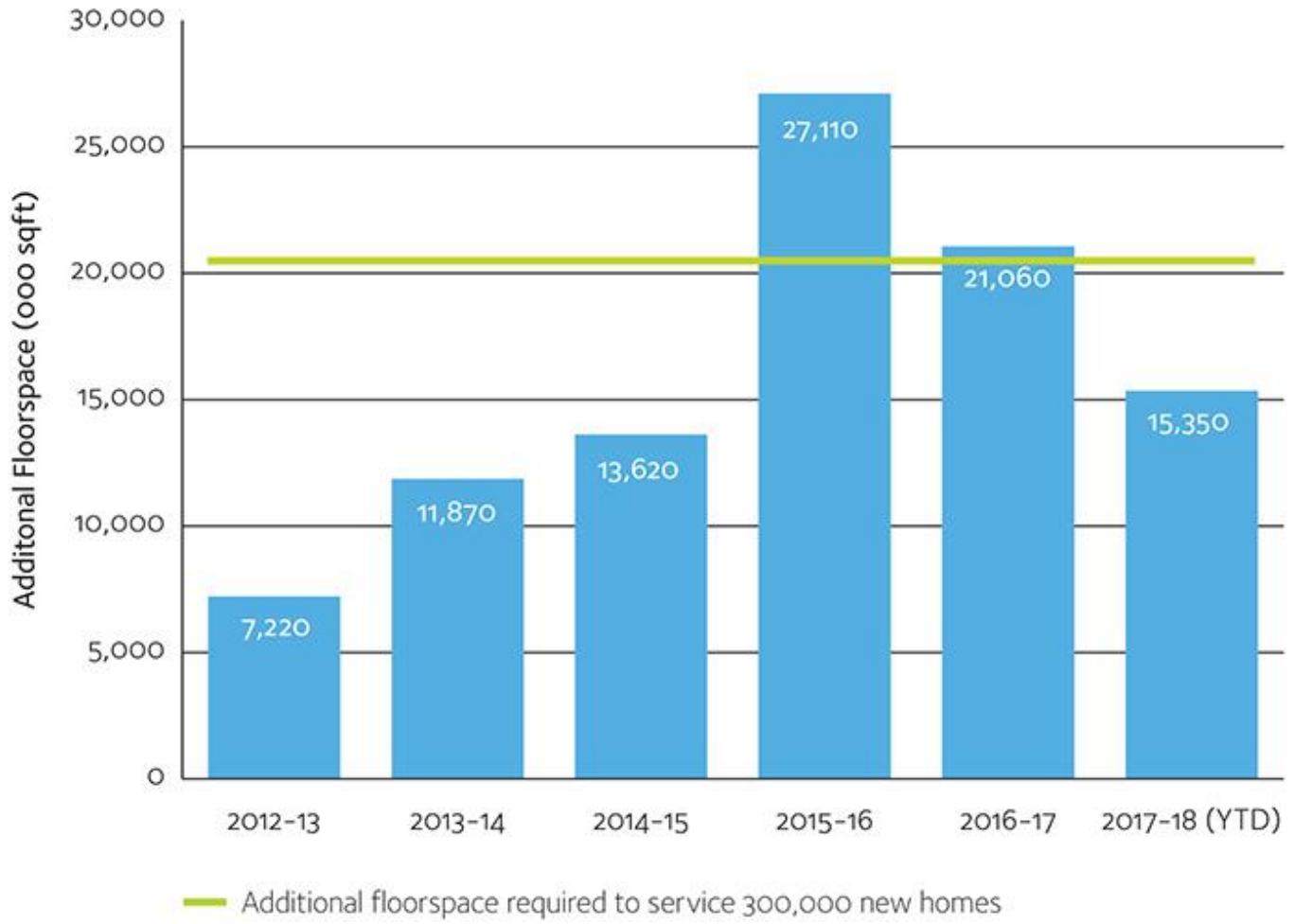
Context

- Acute shortage of housing
- Bold government ambition to deliver 300k new homes
- Local authorities delivering on housing need
- But homes and people need services!
- This includes online shopping


1.64 billion sqft warehouse floorspace
÷
24 million homes
=
69 sqft
(warehouse floorspace per dwelling in England)


60 – 70 sqft
NEWCASTLE UPON TYNE
CARLISLE
SUNDERLAND
80 - 90 sqft
70 - 80 sqft
LANCASTER
YORK
LEEDS
KINGSTON UPON HULL
LIVERPOOL
MANCHESTER
SHEFFIELD
LINCOLN
more than 100 sqft
STOKE-ON-TRENT
NOTTINGHAM
NORWICH
LEICESTER
more than 100 sqft
BIRMINGHAM
PETERBOROUGH
60 - 70 sqft
COVENTRY
CAMBRIDGE
WORCESTER
HEREFORD
OXFORD
ST ALBANS
less than 50 sqft
BRISTOL
LONDON
BATH
less than 50 sqft
50 - 60 sqft
SOUTHAMPTON
BRIGHTON AND HOVE
EXETER
PORTSMOUTH
PLYMOUTH
TRURO


69sqft of warehouse floorspace per home
×
300,000 new homes a year
=
20.6m sqft
a year =
280 football pitches


Additonal Floorspace (000 sqft)
30,000
25,000
20,000
15,000
10,000
5,000
0
7,220
11,870
13,620
27,110
21,060
15,350
2012-13
2013-14
2014-15
2015-16
2016-17
2017-18 (YTD)
Additional floorspace required to service 300,000 new homes

That’s all interesting but so what?

- What new warehousing do we need?
- Where do we need it?
- How do we make sure we deliver it?

Recommendations

National

Sub-National

Private Sector

Thank you

https://www.bpf.org.uk/what-we-do/what-warehousing-where-industrial-report

Ionfletcher@bpf.org.uk

William Roden

Midlands Connect

Midlands Connect

Planning for freight effectively

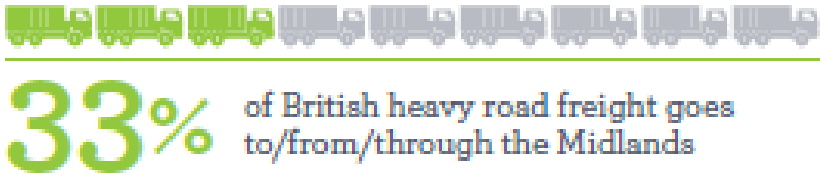
NIC 20 Feb 2020

Midlands Connect – where we start

‘Sub-National’ Transport Body – from the Welsh border to the Lincolnshire coast

Partnership model – we research, develop and recommend multi-modal investment programmes on agreed, ‘strategic’ corridors

Published our Transport Strategy in 2017 – doing a stock-take, including adapting to climate change and impacts of Brexit…



MC study into Freight and Trade – alongside Combined Authority on ‘last mile’ and CW LEP on logistics sector deal…

https://www.midlandsconnect.uk/publications/midlands-connect-strategy-march-2017/

Urban Hubs Globally Connected…

4 economic hubs in the Midlands – also urban centres…

Home to UK's logistics 'Golden Triangle', growing rail interchange demand and largest pure cargo airport (East Midlands) – full range of 'last mile', 'inter-urban' and international freight!

… Don't forget the rural: cities and market towns (like Hereford and Newark) are important gateways to Wales, Yorkshire and North East…

https://www.midlandsconnect.uk/publications/midlands-connect-freight-summary/

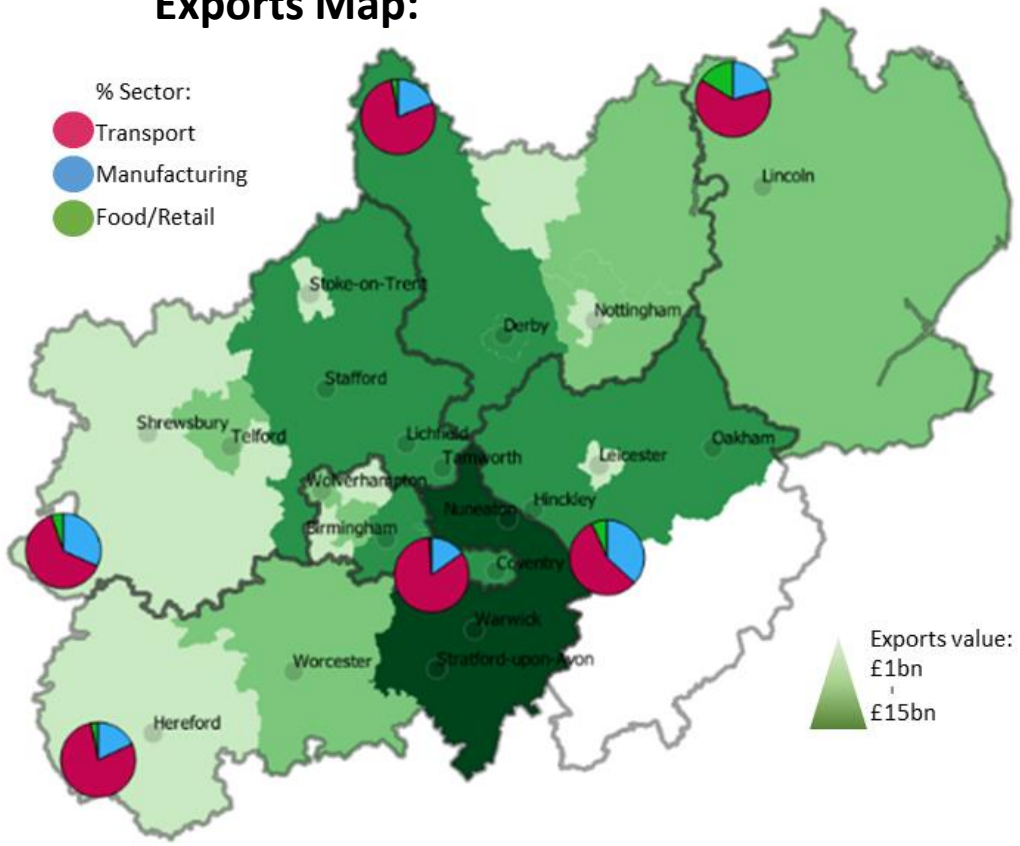
Levelling Up Growth

Midlands Engine exports growing: goods still outpacing services (£55bn pa) – majority in machinery and transport;

Economic Geography changing from our strength to our weakness… should be using connectivity to attract (not lose) investment;

Logistics is commercial specialism, so how much should public sector 'intervene'… possible win-wins: efficiency of network, innovation and decarbonisation, sector deal investment in skills…

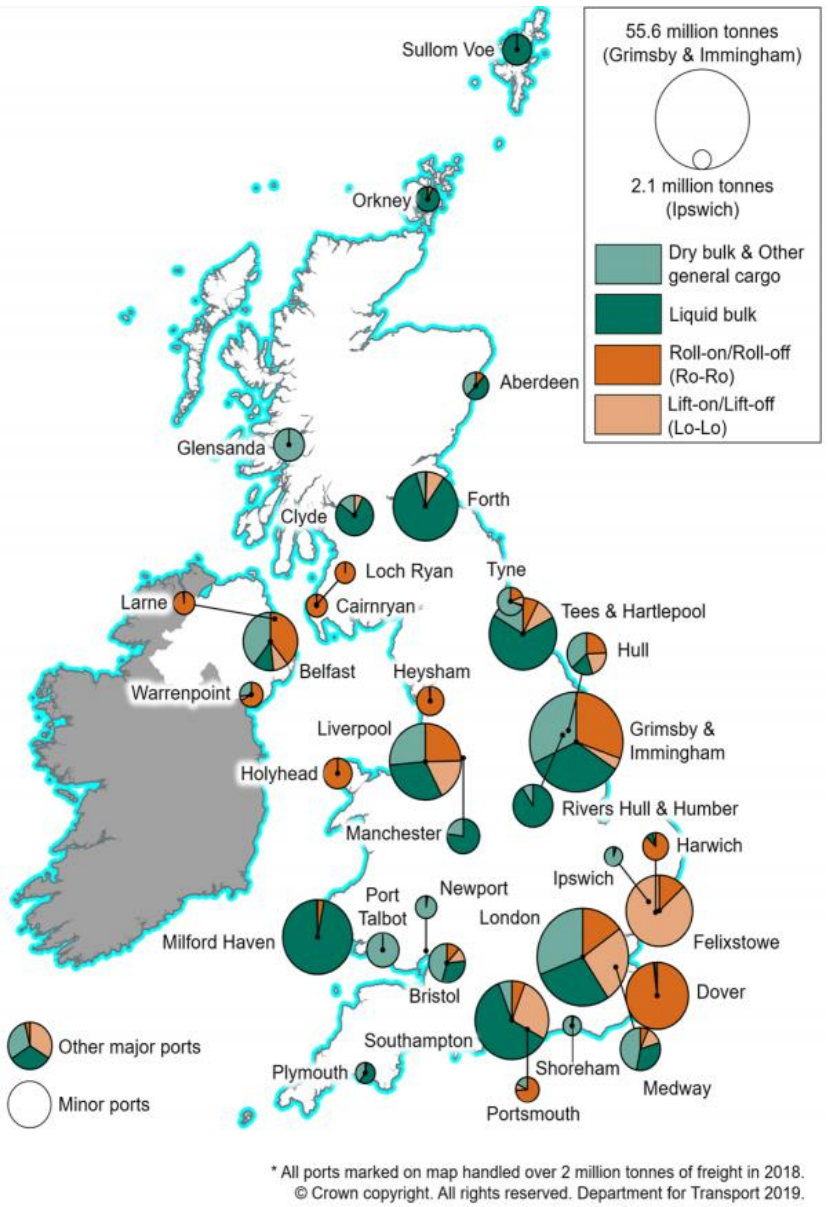
Exports Map:



> 19% have considered relocating because of traffic and/or road conditions, with a further 29% saying they'd consider it if conditions get any worse.

https://www.midlandsconnect.uk/publications/a46-stage-one-corridor-study-summary-report/

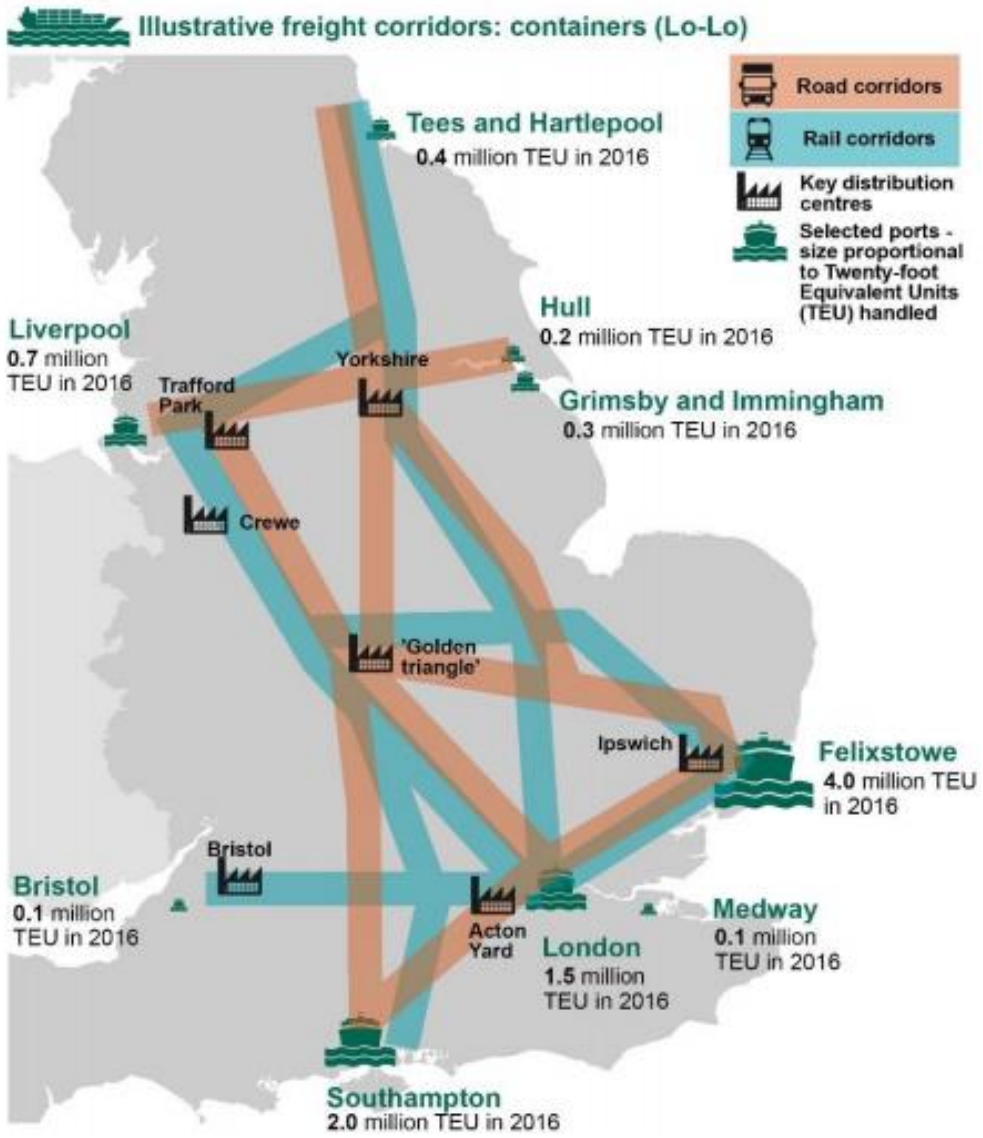
Further Data:



* All ports marked on map handled over 2 million tonnes of freight in 2018.

https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/826446/port-freight-statistics-2018.pdf

Figure 7: Connectivity Corridors - containers (Road and Rail)



https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/710030/transport-infrastructure-global-future-a-study-england-port-connectivity.pdf

RECAP:

i. Urban economies also reliant on goods sectors;
ii. Mixed forecasts of future exports demand – need to scenario test;
iii. National multi-modal studies needed to safeguard key Trade Corridors;
iv. Access to air/ports needs to consider route to businesses – i.e. not just hinterlands!
v. Win-win opportunities e.g. efficiency and skills.

Session 2

Enabling new delivery technologies

NATIONAL INFRASTRUCTURE COMMISSION

Richard Banks

Transport for Greater Manchester

NATIONAL INFRASTRUCTURE COMMISSION

CLEAN AIR
GREATER
MANCHESTER

Greater Manchester Clean Air Plan

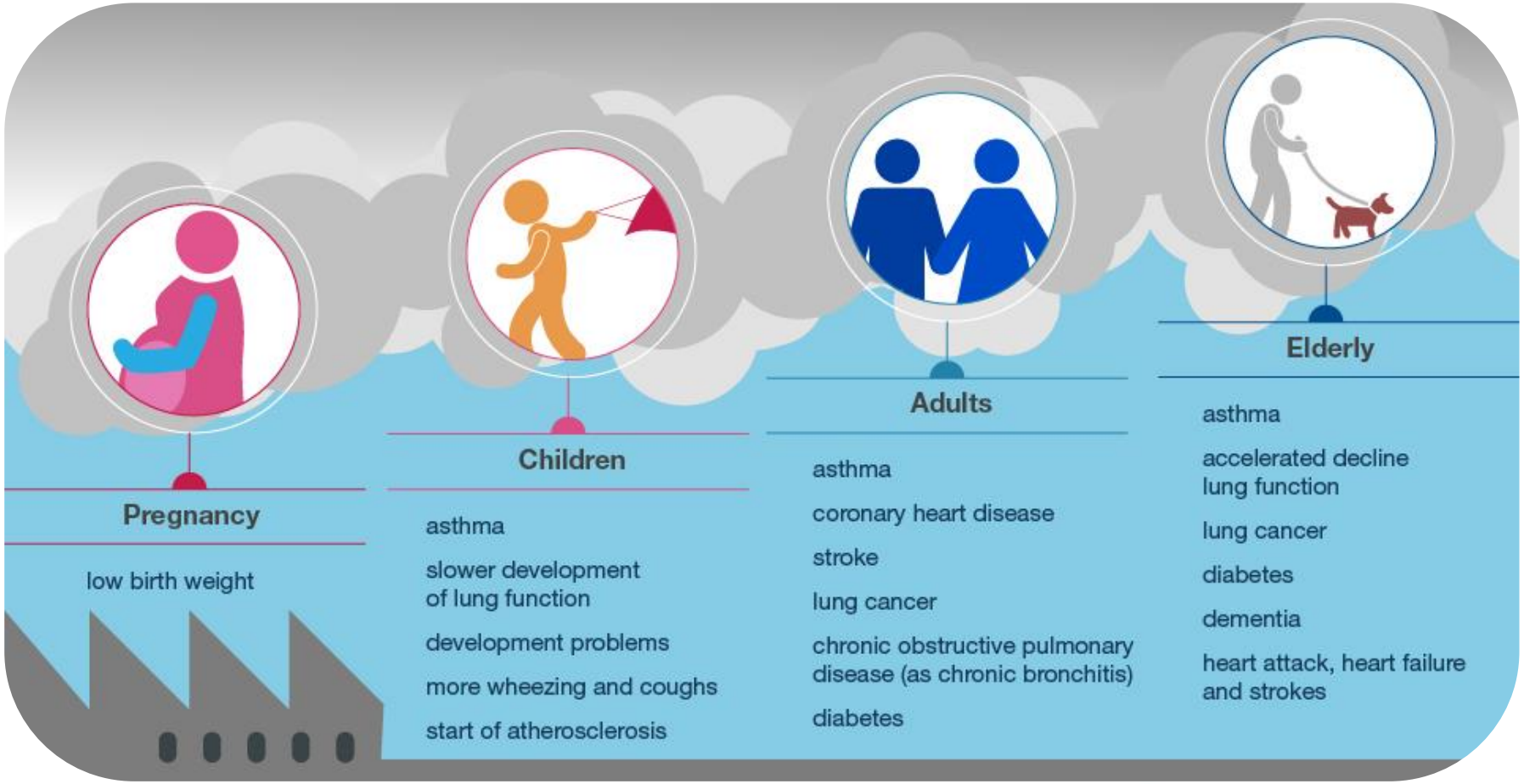
February 2020

CLEAN AIR
GREATER
MANCHESTER

Background

Poor air quality contributes to the equivalent of **1,200 deaths a year in Greater Manchester.**

Air pollution affects people throughout their lifetime.



Public Health England

CLEAN AIR GREATER MANCHESTER

How the GM Clean Air Plan Proposals have been developed

The legal requirements

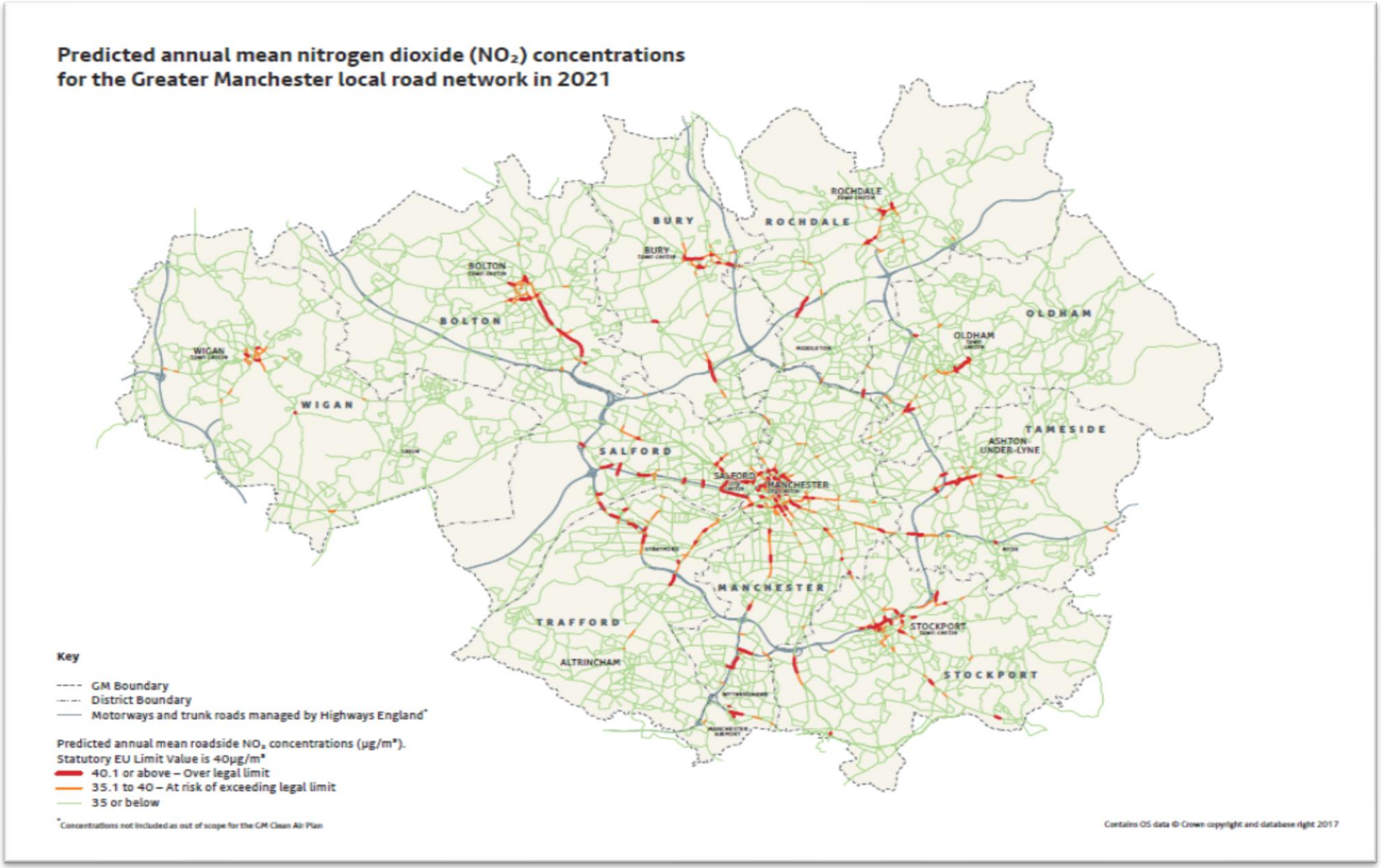
- The Government has directed more than 60 local authorities to take action to bring NO_2 levels within legal limits in "**the shortest possible time**".
- This includes the 10 Greater Manchester Authorities who are required to take quick action to reduce NO_2 emissions, which are mainly produced by older diesel engines.

The Greater Manchester approach

- Greater Manchester local authorities are working together to develop a Clean Air Plan to tackle air pollution on local roads.

CLEAN AIR
GREATER
MANCHESTER

Illegal levels of NO_2 will span all ten Local Authorities



CLEAN AIR
GREATER
MANCHESTER

Greater Manchester Clean Air Plan proposals

A Clean Air Zone across the **whole of Greater Manchester** in two phases from 2021.

Non-compliant buses, coaches, taxis, private hire vehicles, HGVs, vans and minibuses would pay a daily penalty.

Vehicle Type	Assumed CAZ Penalty in OBC
Taxi/PHV	£7.50
LGV	£7.50
HGV	£100
Bus/Coach	£100

Failure to pay the daily charge would result in a £120 penalty charge notice (PCN), in addition to the charge.

CLEAN AIR
GREATER
MANCHESTER

Greater Manchester Clean Air Plan proposals

In addition to the Clean Air Zone:

- **A multi-million pound funding package** to support local business to upgrade to cleaner vehicles.
- **A GM Clean Air Loan Scheme**
- **Treble the number of electric vehicle public charging points in GM.**
- **Helping Greater Manchester switch to greener transport.**

CLEAN AIR
GREATER
MANCHESTER

Funding to clean up GM's non-compliant vehicles

 HGVs, coaches, vans, minibuses, motorhomes and motorised horseboxes	Clean Freight Fund	£59m*
 Buses and coaches	Clean Bus Fund	£29m*
 Taxis and private hire vehicles	Clean Taxi Fund	£28m*

Under our current proposals, the funds will support:

- HGVs and vans, minibuses and coaches (not used as a registered bus service) and other commercial vehicles, which are registered in Greater Manchester.
- Buses/coaches operating as registered services within Greater Manchester.
- Taxis and private hire vehicles licensed in Greater Manchester.

* The indicative funding amounts above are subject to Government approval and further refinement.

CLEAN AIR GREATER MANCHESTER

Seeking feedback on the outline proposals

- Between 13 May and 30 June we held a Clean Air Conversation.
- The proposals are being developed in more detail, informed by the responses from the conversation.
- On 10 July Council leaders in GM received a response from Government.
- Ministerial Direction requiring a Class C Clean Air Zone without any exemption for Light Goods Vehicles (LGVs), to be implemented across Greater Manchester in 2021.
- It also included £36 million to aid in setting up Clean Air Zone infrastructure.
- The letter did not reference any grant funding to support affected groups in upgrading or replacing their vehicles to become compliant.

CLEAN AIR
GREATER
MANCHESTER

Next steps

- Continuing to work with businesses across Greater Manchester to understand the impact that the proposals will have on them.
- Detailed proposals will be published.
- A statutory consultation will follow, where you can have your say on the detailed proposals.

- You can **sign up for news and updates** on the Greater Manchester Clean Air Plan.
- You can also email **info@cleanairgm.com** or phone **0161 244 1000**.
- For media enquiries please contact the **TfGM Corporate Communications team**.

Rob King

Zedify

NATIONAL INFRASTRUCTURE COMMISSION

ZEDIFY

BETTER DELIVERIES FOR BETTER CITIES

We provide businesses with a delivery service that enhances their brand with deliveries the way they want.

Zedify are here to transform urban logistics and create the healthier, cleaner, more liveable cities of the future.

THE PROBLEM

ZEDIFY

BETTER DELIVERIES
FOR BETTER CITIES

A changing urban landscape

Congestion

- Missed timeslots
- Frustrated drivers
- Poor doorstep experience

Pollution

- Customers demanding cleaner, more ethical deliveries
- Restricted access in city centres

Old System*

- Can’t deliver in narrow timeslots efficiently
- Last mile very inefficient and can comprise up to 50% of total delivery cost

*Long stem mileage, vans/trucks not optimised for urban environment

THE SOLUTION

ZEDIFY

BETTER DELIVERIES FOR BETTER CITIES

Zedify solves these problems and enhances our clients' brand

Great door-step experience	Zero emission deliveries	Narrow time-slots guaranteed

THE SOLUTION

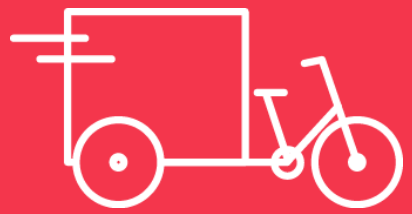
ZEDIFY

BETTER DELIVERIES
FOR BETTER CITIES

The Zedify system –
First & last mile deliveries done better

Consolidate at edge of city hub

- Gateway for items coming in/out of area
- Close to delivery area, so multiple routes & ability to hit timeslots efficiently



Remode to ecargobikes

- Faster across town
- Zero emission
- What customers want

Smart, optimised deliveries

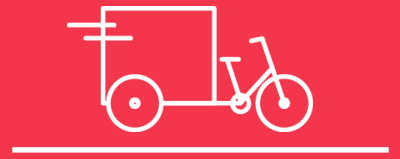
- Our own tech platform designed to make deliveries more efficient

OUR SERVICES

ZEDIFY

BETTER DELIVERIES
FOR BETTER CITIES

We work with any business who has **scheduled deliveries in urban areas**



Only Mile

Local Delivery

Local deliveries for local customers (small businesses, inter office deliveries etc)

Last Mile

Final Delivery

Deliveries coming into the city from outside.

Consolidated, then re-moded to city suitable vehicles

First Mile Collection

Collections of items for consolidation before onward delivery from a national partner

We don’t do ‘on-demand’ or one-off deliveries eg Deliveroo or Stuart

OUR WONDERFUL CLIENTS

ZEDIFY

BETTER DELIVERIES FOR BETTER CITIES

250 national and local customers. In past year over 300,000 items delivered from our 8 UK depots.

TNT

Freddie's Flowers

abcam

Abel & Cole

valpak® a Reconomy Group company

"FED chose Zedify as our logistics partner because their ethical, zero emission deliveries matched our brand as a B Corp. In terms of operations, their cargo bikes can cut through traffic and our customers appreciate their friendly riders."

FED by Abel & Cole

"Our customers were overwhelmingly positive about the experience and I wanted to pass on our thanks for the level of service you provide"

Abcam Plc

"The service has been nothing but excellent - great communication from the team and always happy to help. Highly recommended!"

Edgar's Fruit

ACCELERATING UPTAKE

ZEDIFY

BETTER DELIVERIES FOR BETTER CITIES

Barriers

- Vehicles – finance, reliability, support
- Depot space
- Access restrictions
- Amazon Prime effect

What can LAs do?

- Funding
- Prioritise depot space
- Be bold with CAZs
- Smarter CAZ charging
- Give clarity

ZEDIFY

BETTER DELIVERIES FOR BETTER CITIES

ZERO EMISSION DELIVERIES

THANK YOU FOR LISTENING!

rob@zedify.co.uk

Zedify.co.uk | @Zedify UK

Claire Thompson-Sage

UPS

NATIONAL INFRASTRUCTURE COMMISSION

UPS Sustainability

Urban Freight Solutions

UPS Sustainability Goals & Performance

ENVIRONMENTAL GOALS

12% by 2025
Reduction in Absolute GHG Emissions in Global Ground Operations

25% by 2025
Electricity From Renewable Sources

40% by 2025
Alternative Fuel as a Percentage of Total Ground Fuel

25% by 2020
Total Vehicles Purchased Annually That are Alternative Fuel or Advanced Technology Vehicles

U.S. SMALL PACKAGE OPERATION
CO2e/Package

↓15.4%

2007 Baseline: 2.78 Lbs

2018 Actual: 2.35 Lbs

GLOBAL AIRLINE FUEL
CO2e/ATM

↓11.7%

2007 Baseline:1.54 Lbs

2018 Actual: 1.36 Lbs

U.S. SUPPLY CHAIN & FREIGHT OPERATION
CO2e/Lb of Freight

↓31.4%

2007 Baseline: 0.26 Lbs

2018 Actual: 0.18 Lbs

CARBON INTENSITY REDUCTION OVERALL

↓16.5%

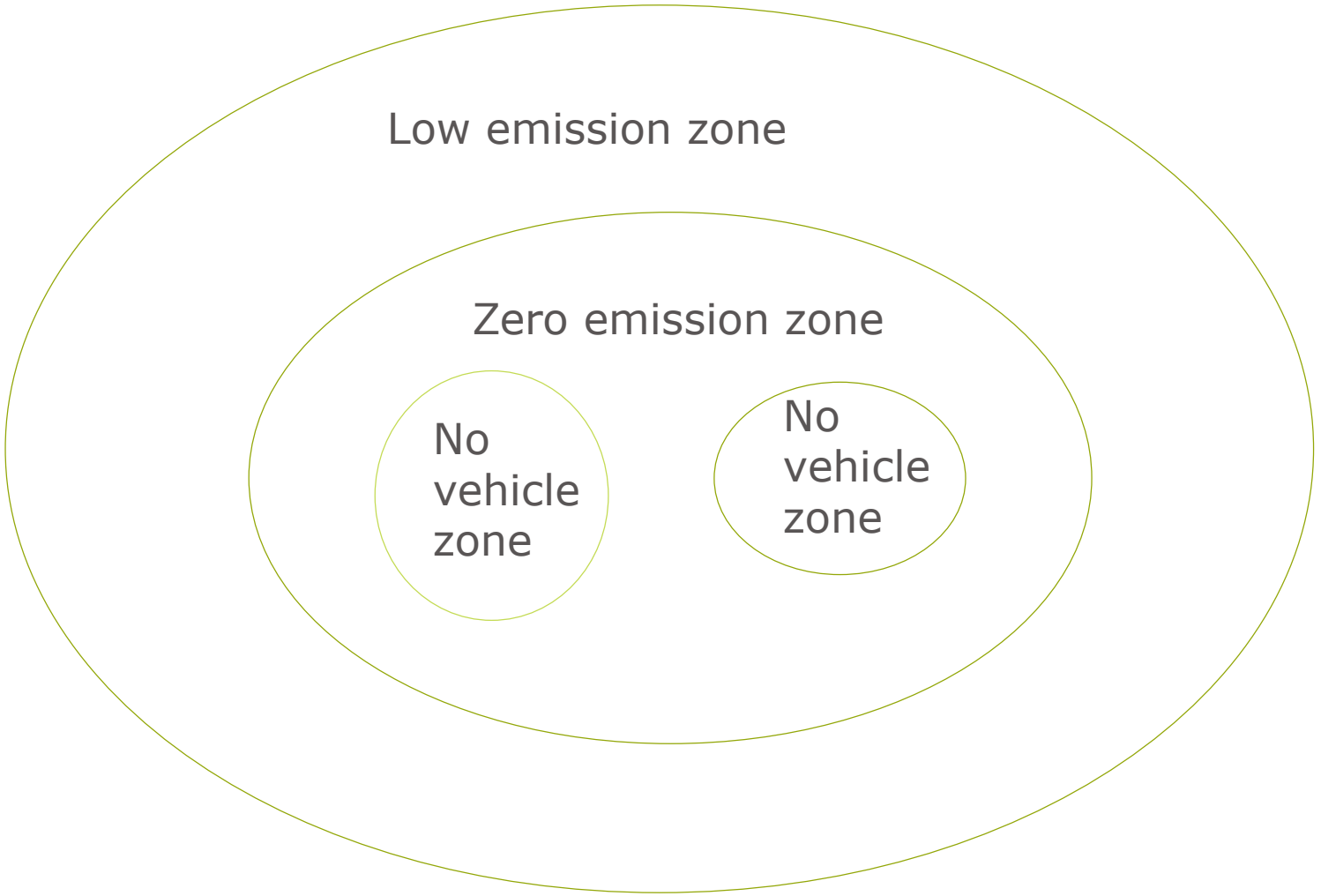
Compared to 2007

10,000+

Alternative Fuel or Advanced Technology Vehicles

UPS sustainable transport strategy

The future urban landscape we need to plan for




Dirty diesel death toll hits 60,000

Invisible killer

Air pollution could be killing far more people than previously realised, say scientists

Customer Options

UPS My Choice™

UPS Smart Pickup™

UPS Access Point™

Provides customers with centralized locations for package pickup and delivery

Result: Fewer Trips, Less Fuel, Reduced Emissions

E-trailer bicycle and walk mode solution

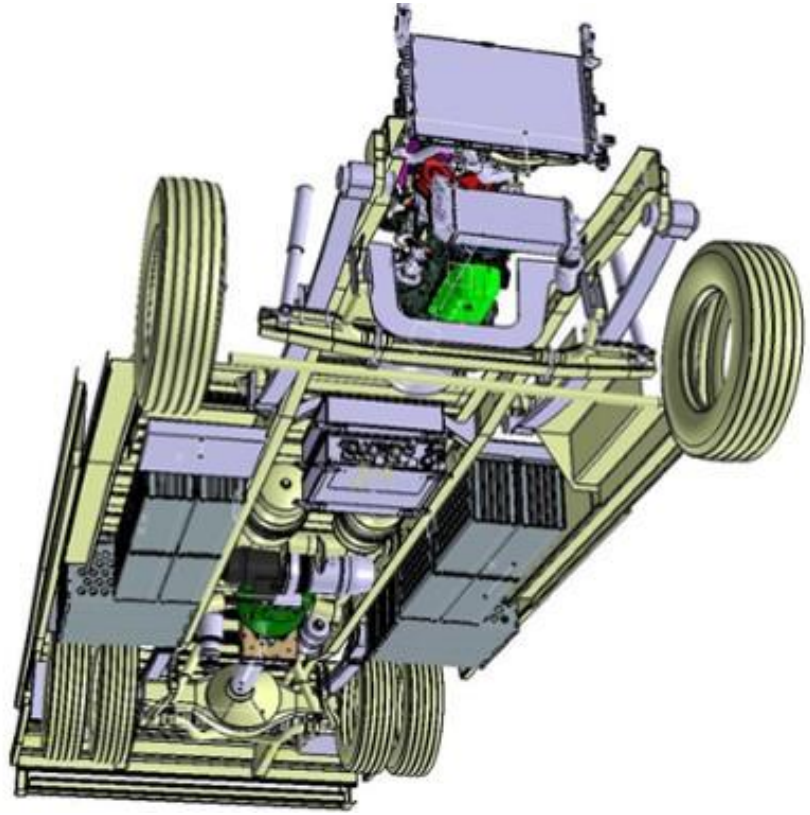
- Electrically assisted payload boxes
- Dublin city council grant permission to test walk mode
- Deployed & tested in Dublin 2019 – 2020
- Aim to deploy in London 2020

New & Retrofit Electric vehicles

- 2008 marked the introduction of EVs into the UK
- UPS partnered with Modec
- Retrofit diesel vehicles to convert to EVs
- Reduces diesel scrappage
- Range of 50 miles per day
- Further partnership with EFA-S on other models
- 33% of London vehicles pure EV

Range Extended Electric Vehicles

- Current stem time from centre is often too far for standard EVs
- Electric propelled vehicle equipped with a small diesel engine to provide extended range by recharging batteries on demand via telematics
- 1 vehicle trialled in Barking 2016
- Deployed 5 in Southampton & 10 in Tamworth in 2019

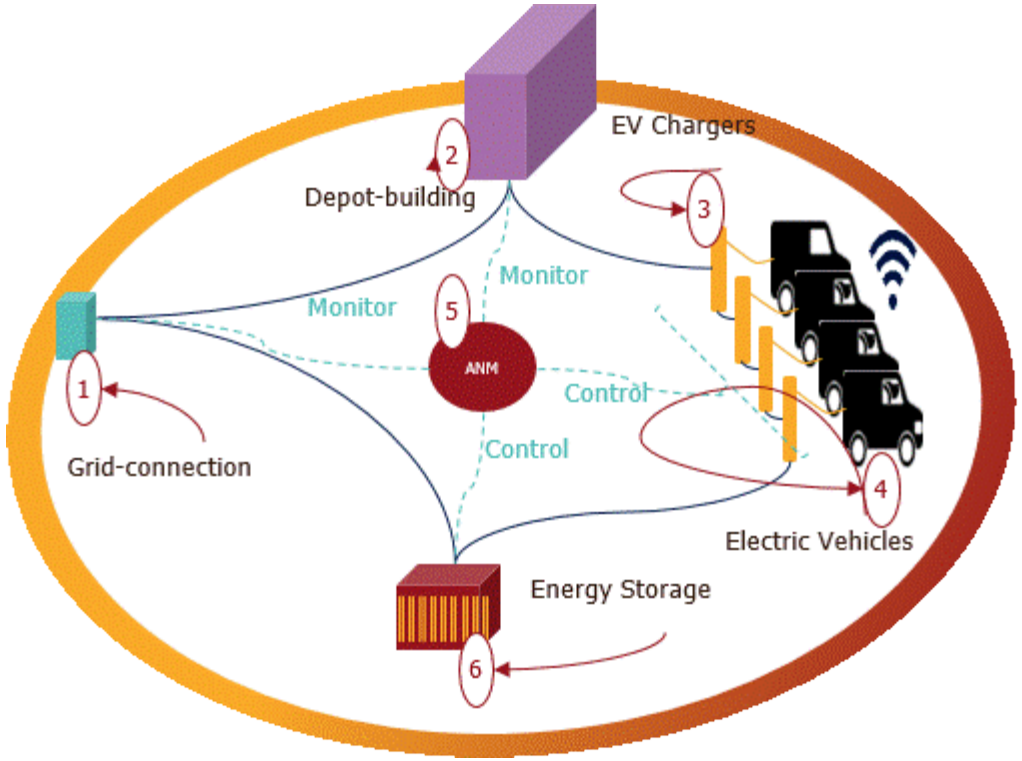


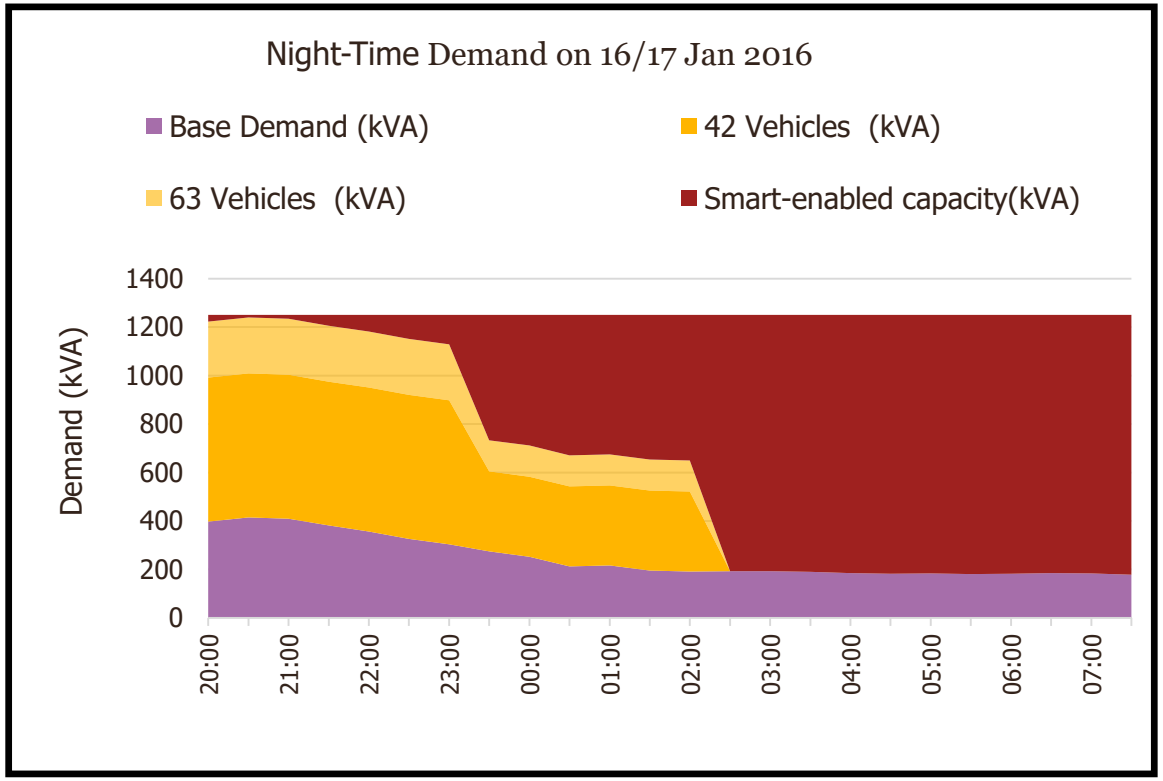
2020 Electric vehicles

- Next generation EVs Arrival
- Range of 150 miles per day
- Improved visibility
- Cycle friendly
- 3 different models
- To be deployed & tested in London 2020

Camden Smart grid project

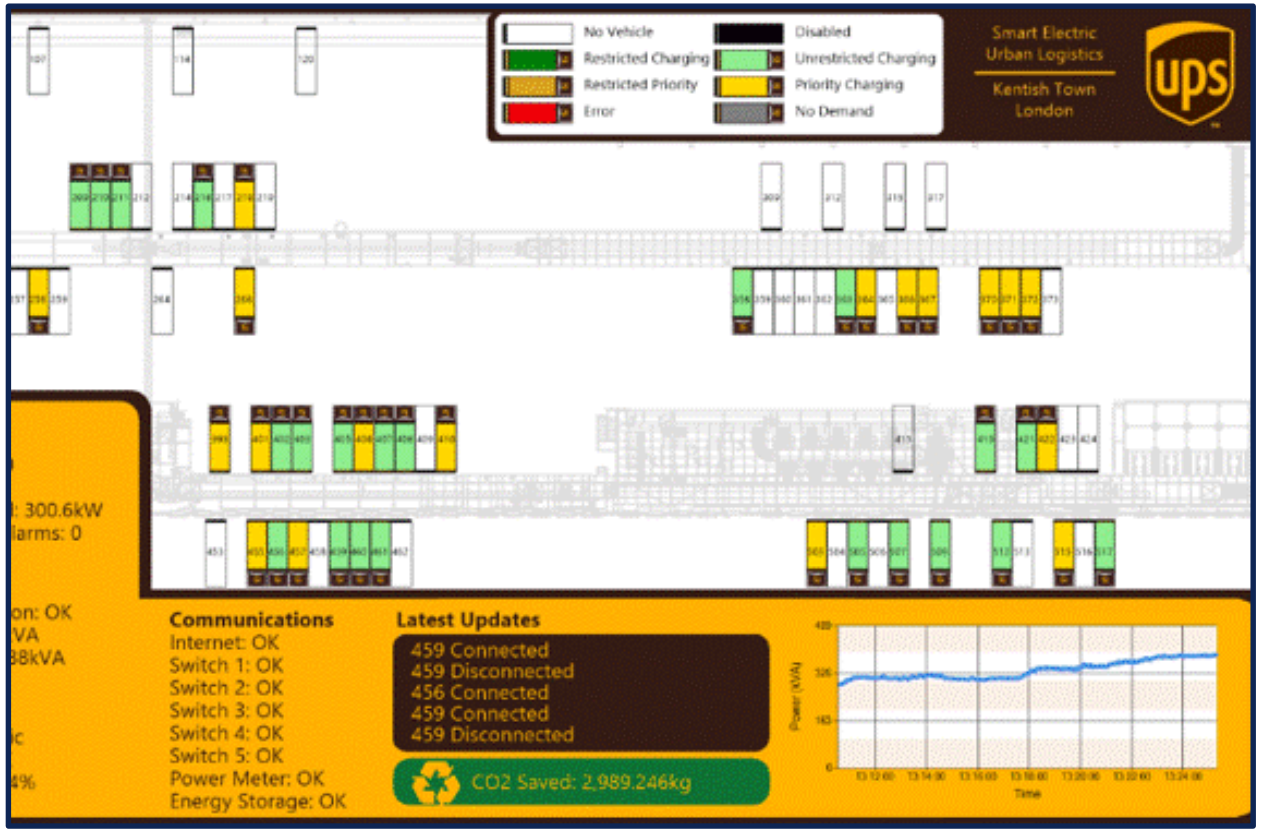
- 2017 reach power capacity for EV charging
- Installed smart grid technology & battery storage system to provide power for a full EV fleet (200 vehicles)
- EOL EV batteries tested for use as on site storage





Camden Smart grid – the benefits & 2020

- Identifying charge faults
- Slower charge, extended battery life
- Utilise Ex-EV batteries at EOL – circular economy
- Incremental movable upgrade
- Future share electricity during the day
  - Public charging opportunities
  - Employee car charging



Collaborating with councils, businesses and communities

How can we work together to improve air quality?

- Communicating with councils to identify clean air zones and most suitable alternative vehicle options
- Identifying Eco hub, E-Tricycle & E-trailer staging and parking locations
- Use of pedestrianised zones, cycle & bus lanes
- Personal and business delivery choices – time & location
- Consolidating deliveries and pickups
- Promote electric vehicles:
  - Company cars
  - Providing charging infrastructure

Thank you

cthompsonsage@ups.com

Speech

Julian Allen, University of Westminster

NATIONAL INFRASTRUCTURE COMMISSION

Challenges and opportunities in last-mile deliveries

NIC Cities Seminar

20 February 2020

Julian Allen

UNIVERSITY OF WESTMINSTER

Centre for Sustainable Road Freight

FTC 2050
FREIGHT TRAFFIC CONTROL

20 Feb 1944 – Batman first serialised in American newspapers – 76 years ago today

Batmobile

- 0 to 60 mph in 2.7 seconds
- Top speed of 330 mph (with jet booster)
- 10,000 horsepower jet engine
- Fuel: High octane petrol-paraffin mix
- Fuel efficiency: 4 miles per gallon
- Armour plating
- Stealth mode
- Can fire 19 types of projectiles
- Heat ray crowd control dispersal cannon
- Features a concussive sonic blast device
- Radio link to Batcomputer in the Batcave
- On-board Batphone
- Capable of flight

20 Feb 1944 – Batman first serialised in American newspapers – 76 years ago today

Batmobile

Electric-hybrid bus

Today Batman told to use bus when fighting crime in Gotham City

What is urban freight and why does it matter?

Types of urban freight:

- Retail goods
- Wholesaling
- Flows of goods manufactured in/out of urban area
- Hotels, restaurants and catering & entertainment
- Construction and building materials
- Raw materials and semi-manufactured articles
- Ecommerce deliveries (B2B and B2C)
- Waste collection
- Post
- Servicing for businesses and residents

Range of vehicles used:

- Truck
- Van
- Car
- Motorcycle
- Bicycle
- On-foot
- Non-road (rail, water, air, pipeline)
- New technology (droid, aerial drone, airship)

Economic and social importance:

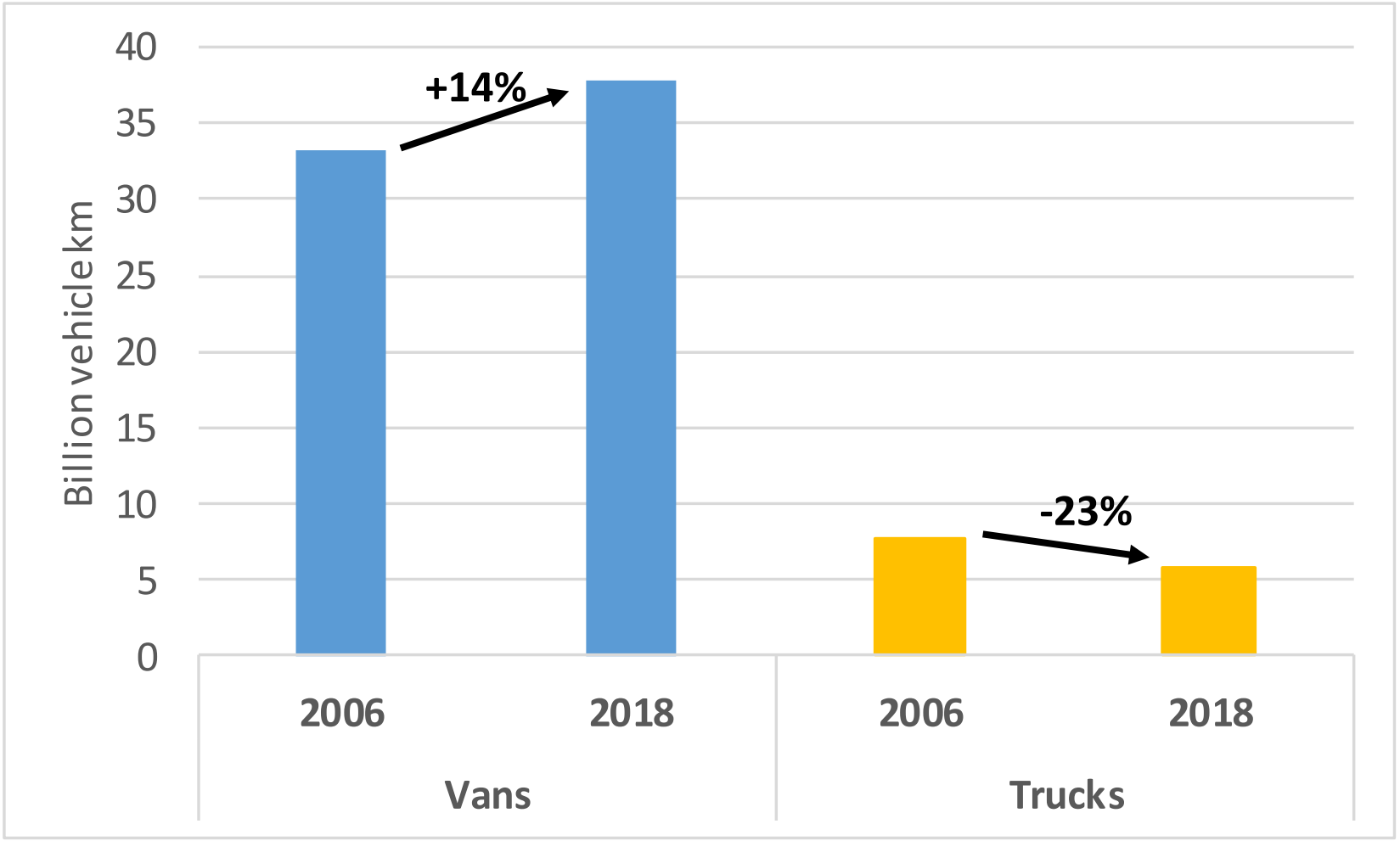
- Supports businesses & tourism
- Economic growth
- Quality of life

Negative impacts:

- Air quality and GHG emissions
- Road safety
- Contribution to road congestion

Many stakeholders: retailers, manufacturers, wholesalers, businesses and consumers requiring goods and services, freight operators, logistics providers, service providers, property developers, land owners, vehicle manufacturers, infrastructure providers, technology providers, trade associations, various tiers of government and other public sector bodies, civic and environmental groups

Urban freight vehicle activity in Britain



- As % of total urban road traffic in 2018:
  - Vans – 14%
  - Trucks – 2%
- As % of total road national traffic by vehicle type in 2018:
  - Vans – 46%
  - Trucks - 21%

Source: calculated from DfT, 2019

Impact of changes on freight transport demand & pattern in urban areas

Economic, social, technological & regulatory triggers

- Population and employment growth in urban areas
- Rise of the service economy
- Outsourcing of service activities
- Rising urban land values and suburbanisation of warehousing / logistics activities
- Rationalisation of warehousing (fewer, bigger)
- Reduced stockholding
- Rise in e-commerce & last-mile delivery services
- Fewer operating restrictions on vans than trucks
- Shortage of truck drivers
- Increasing urban road congestion

Logistics outcomes

- Growing demand for goods and services
- Increase in goods and service vehicle journey distances
- Smaller, more frequent delivery quantities
- More goods deliveries in residential areas
- Greater manoeuvrability of vans in congested locations

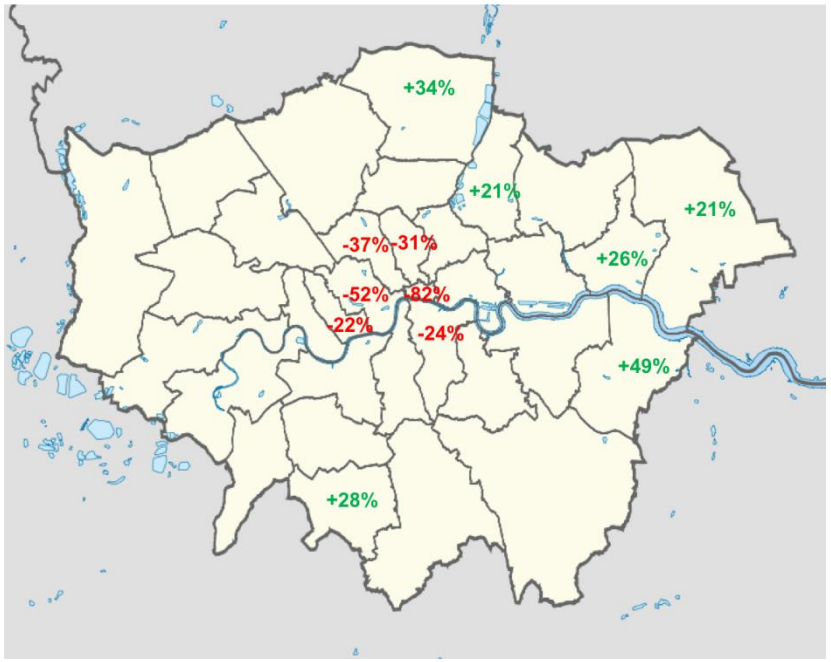
Freight traffic & environmental outcomes

- Increase in van activity in urban areas
- Increase in associated AQ and CO_2 impacts

Urban freight transport infrastructure challenges

- Road capacity and traffic speeds
  - 30% decrease in road capacity 1993-2009 in London
  - average traffic speeds in London 2-9% lower than 2008/9
- Competition for kerbside stopping space:
  - Increase in bus and cycle lanes
  - Other users
- Scarcity of affordable logistics depots:
  - Increase in distance travelled to delivery catchment area

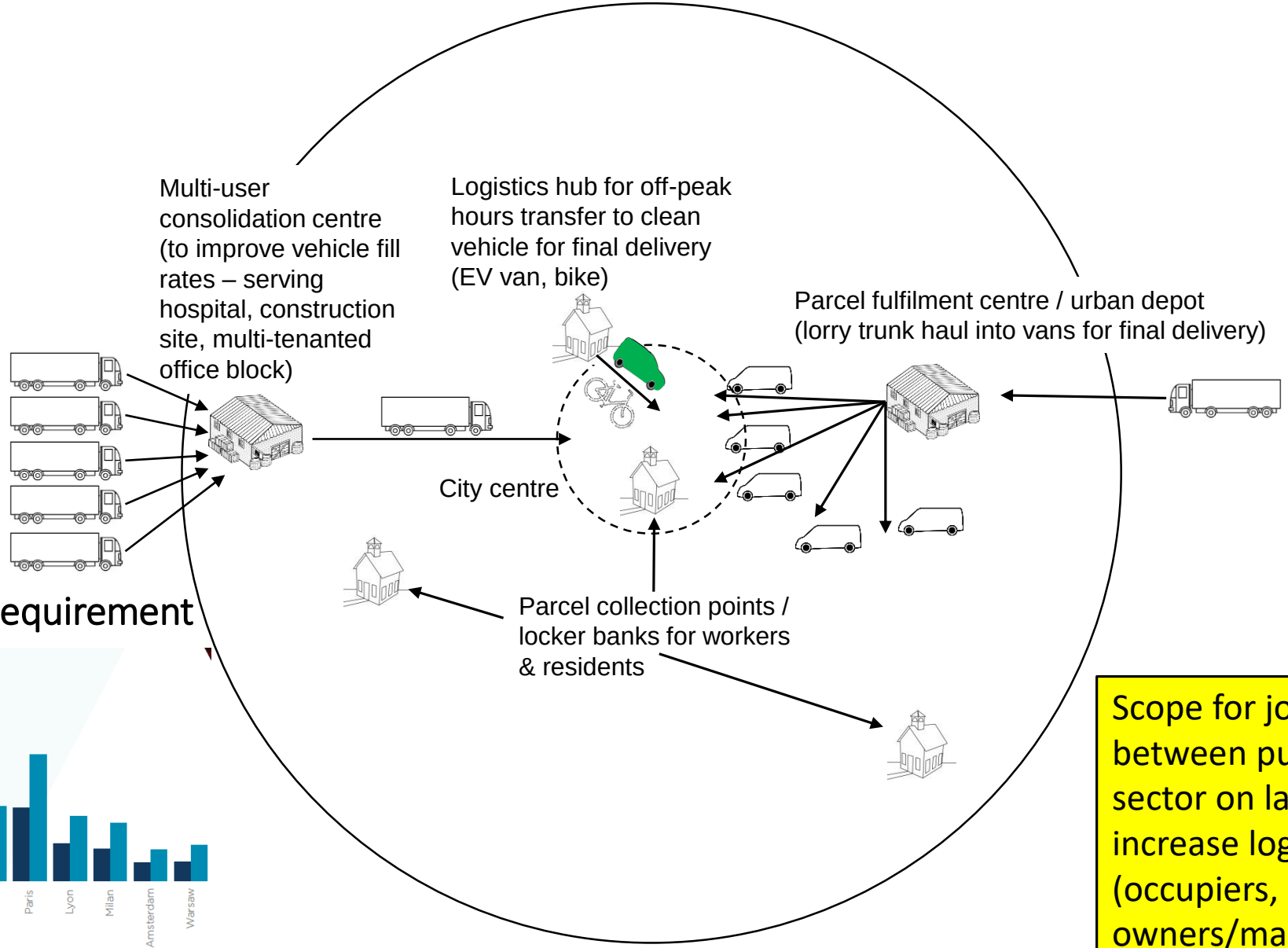
Logistics sprawl: change in warehousing floor-space 1998-2008 (% in selected London boroughs)



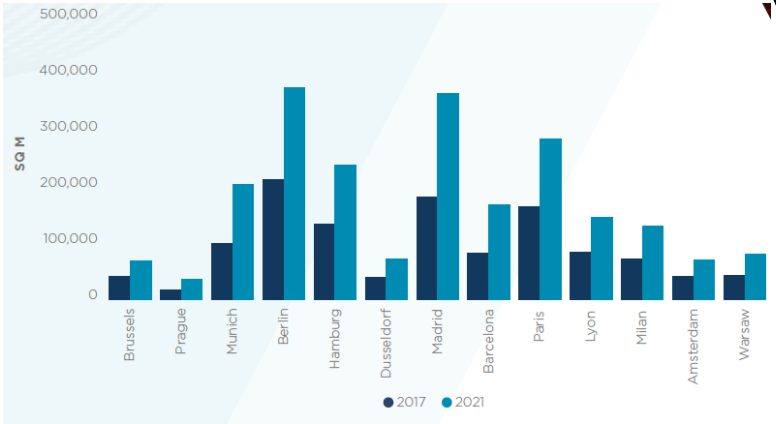
Research indicates trend continued 2008-2015 (i.e. reduction in central boroughs and increase in outer boroughs)

Total warehousing floor space in London fell 7% between 2006 and 2015

Demand for logistics land for deliveries in the urban area



Urban logistics space requirement

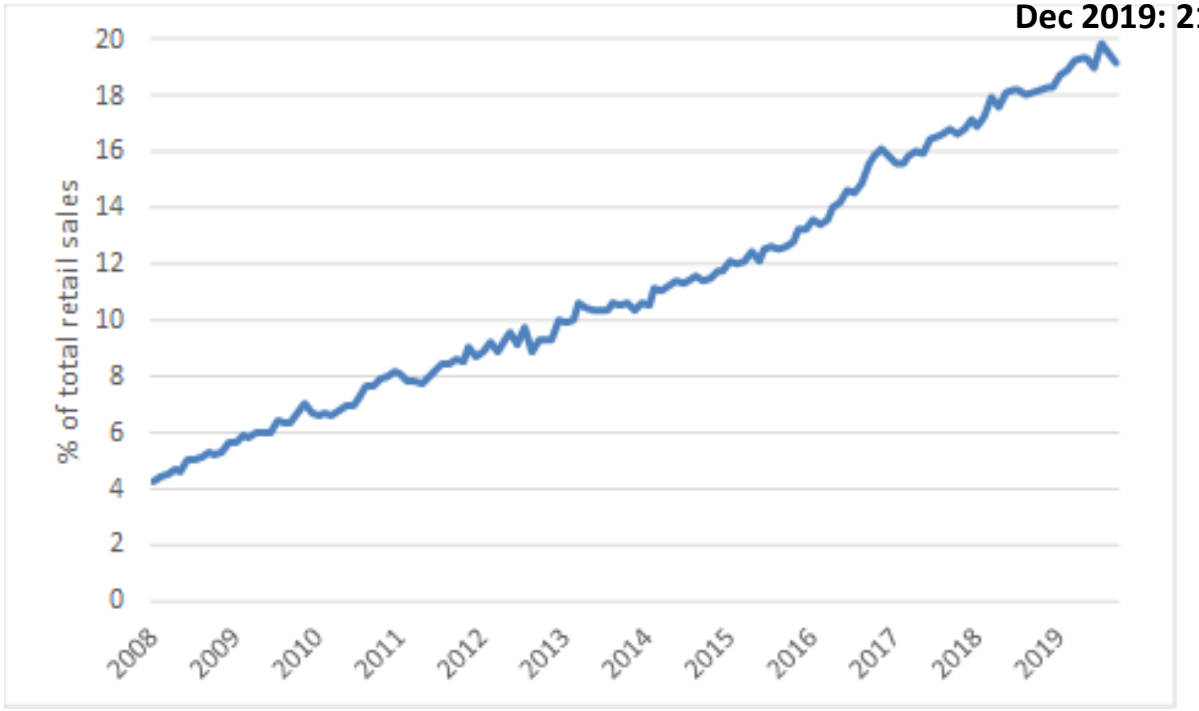


Source: Cushman and Wakefield, 2017

Scope for joint working between public and private sector on land solutions that increase logistics sustainability (occupiers, property owners/managers, freight operators, policy makers)

Growth in online retailing of physical goods in the UK

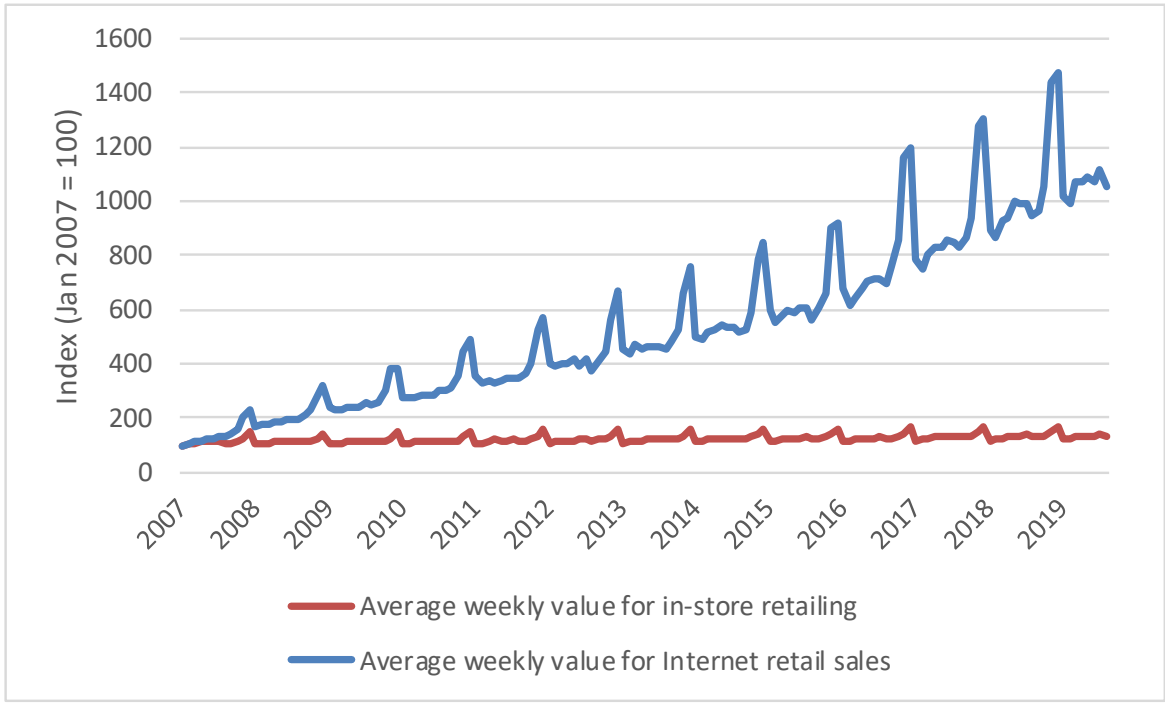
Online sales as % of total retail sales in UK



Note:
Data is seasonally adjusted.
Based on average weekly sales data for each month.
Source: ONS, 2019

- Forecast to continue to increase by at least 1% of total retail sales per annum in coming years

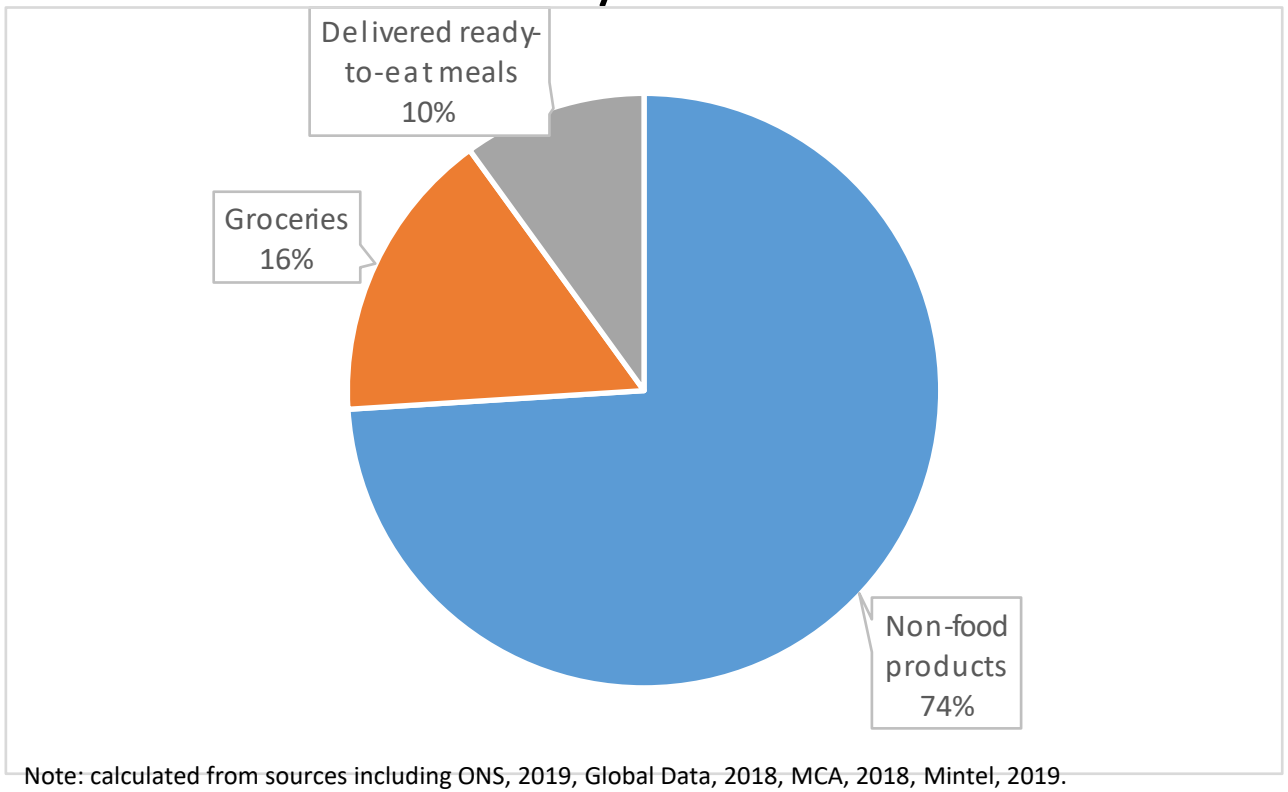
Store-based and online retail sales in UK (Index Jan 2007 = 100)



Note:
Non-seasonally adjusted data.
Source: Calculated from data in ONS, 2019.

- 35,000 shops closed in UK Jan 2018 - Oct 2019
- Shop vacancy rates in UK of 11.2% in 2017

Online shopping for physical goods in UK in 2018 by sales revenue



Note: calculated from sources including ONS, 2019, Global Data, 2018, MCA, 2018, Mintel, 2019.

- Total online shopping sales for physical goods (inc.meals) in the UK in 2018 approximately £76 billion
- Non-food sector:
  - Smaller items delivered as parcels
  - Larger, heavier items (inc. furniture and white goods delivered by two-person crews)
- Smaller items estimated to be 80% of total online non-food sales (by value) in UK in 2018 (Global Data, 2018)

Estimated annual growth in online shopping in UK in 2018 by sector

Sector	Est. annual growth rate in 2018 (by value)
Parcels	12%
Grocery	9%
Ready-to-eat meals	13%

Source: MCA, 2018, Mintel, 2019.

Estimated last-mile deliveries in UK in 2018 by sector

Sector	Est. no. of deliveries in 2018
Parcels	3.6 billion parcels
Grocery	175 million orders
Ready-to-eat meals	325 million orders

Note: calculated from sources including MCA, 2018, Mintel, 2019.

UK Parcel market: domestic volumes and revenues

Years	Change in total parcel volume	Change in total parcel revenue	Change in revenue per parcel
2013/4-2014/5	+7%	+3%	-4%
2014/5-2015/6	+14%	+13%	-1%
2015/6-2016/7	+7%	+5%	-2%
2016/7-2017/8	+9%	+4%	-5%
2017/8-2018/9	+9%	+4%	-5%

Note: domestic parcels
Source: calculated from OFCOM, 2014-2019

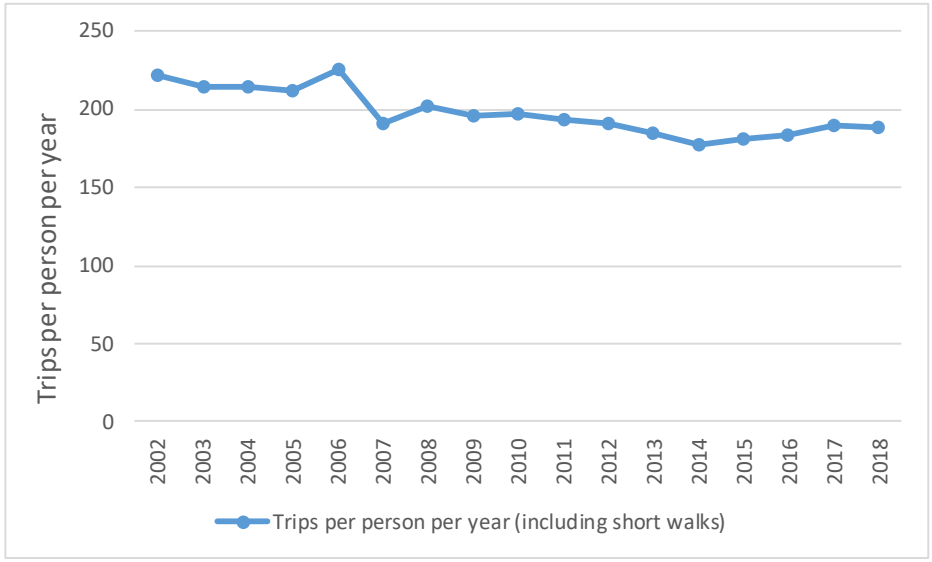
- Under-pricing of last-mile delivery services by retailers also causing financial difficulties for parcel carriers
- Revenue per domestic parcel (2018/19): £2.98
- Volumes grow but revenue per parcel falls

Parcel delivery challenges for retailers and logistics operators

- Customer service levels increasing:
  - 57% parcels delivered on a next-day basis (Source: Ofcom, 2017)
  - Growing same-day delivery offers
- Many customers want “free delivery”
- Other operational challenges:
  - Product return rates (esp. clothing)
  - First time delivery failures
  - Seasonality – coping with peaks
- Delivery point:
  - Most deliveries to home
  - Plus workplace, click and collect at store, & collection point/locker bank
- Growing parcel volume requires additional/larger infrastructure

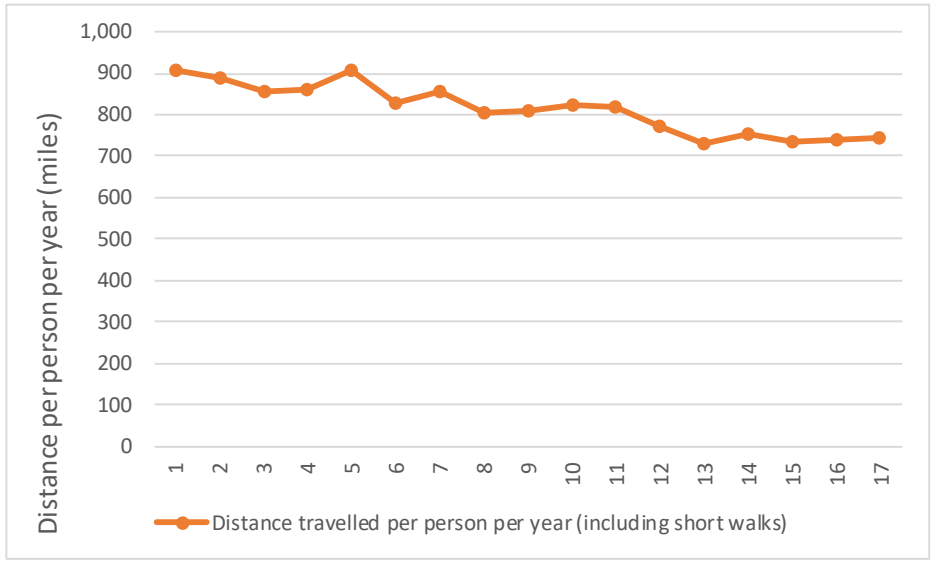
Trends in personal shopping travel

Number of shopping trips per person in England



Source: National Travel Survey

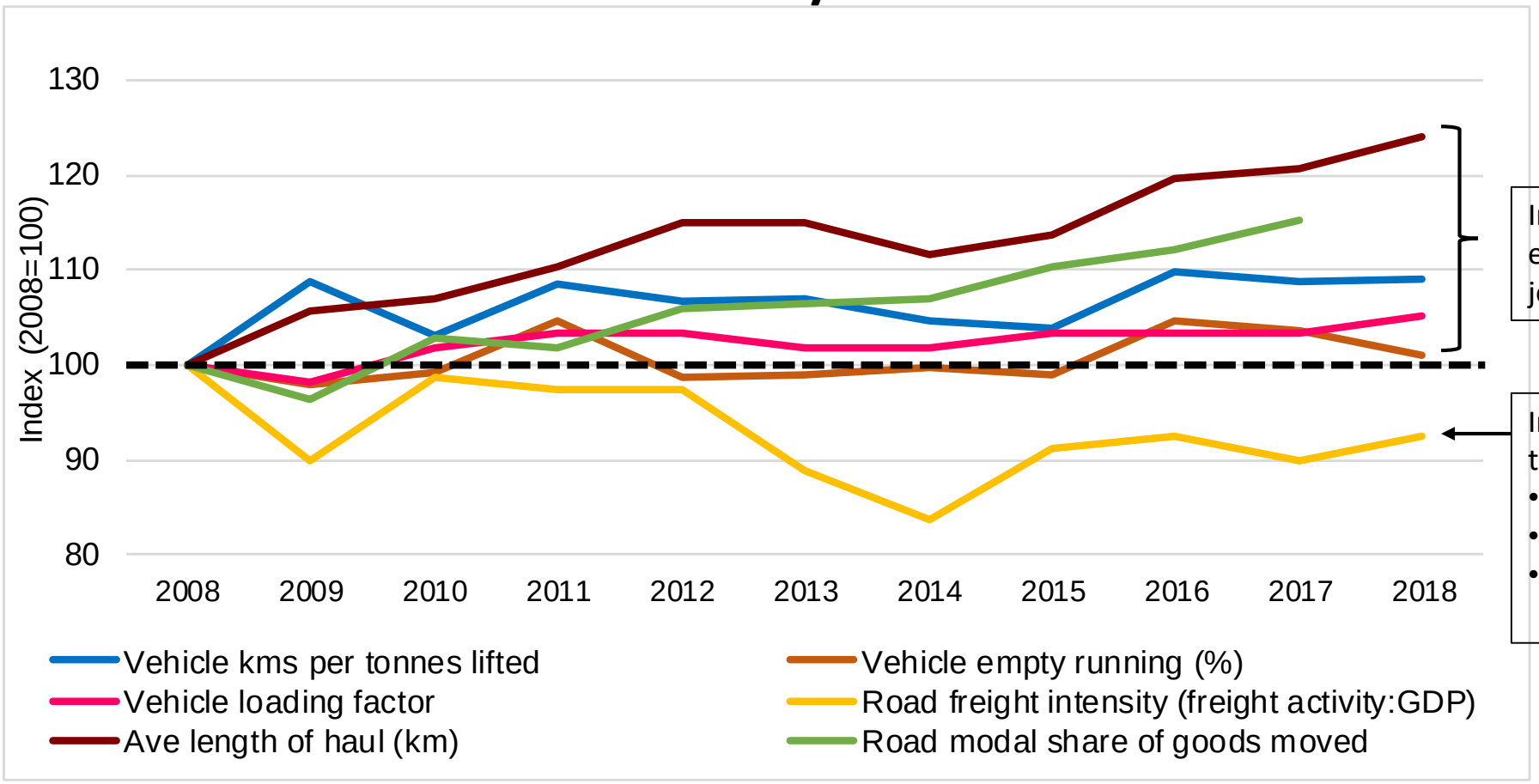
Distance travelled on shopping trips per person in England



Source: National Travel Survey

- Average shopping trip distance has remained relatively constant (4 miles) as has time spent travelling per shopping trip (17 minutes)
- Car is dominant mode for shopping trips:
  - 64% of shopping trips and 84% of total shopping distance in 2018
  - Little change in relative importance of car for shopping since 2002
- Online shopping does not remove all personal shopping trips (some still view and research goods, return and collect goods, and shopping as leisure)

Measures of road freight (trucks) sustainability in Britain 2008-2018



Indicators of operational efficiency of goods vehicle journeys

Indicator influenced by change in total goods in economy:

- Shift to service economy
- Offshoring
- Centralisation of stockholding has run its course

Source: calculated from data in DfT, 2019

Lack of data availability prevents same level of analysis for vans or urban areas

Total annual parcel operations from depot to customers in London's Central Activities Zone

(All Business-as-Usual scenarios combined)

Taking account of:

- *Slower vehicle speeds*
- *Harder to find parking spaces*
- *More inexperienced drivers*
- *Depots further from urban centre*
- *More parcels with time guarantees*

	Current	Low Scenario	Moderate Scenario	High Scenario
Total driving time (million hours)	**3.8**	**+18%**	**+59%**	**+104%**
Total kerbside parking time (million hours)	**5.3**	**+10%**	**+30%**	**+50%**
Total driving distance (million km)	**36.0**	**+20%**	**+60%**	**+100%**
Total last-mile operating costs (vans & drivers)	**£181 million**	**+14%**	**+43%**	**+75%**

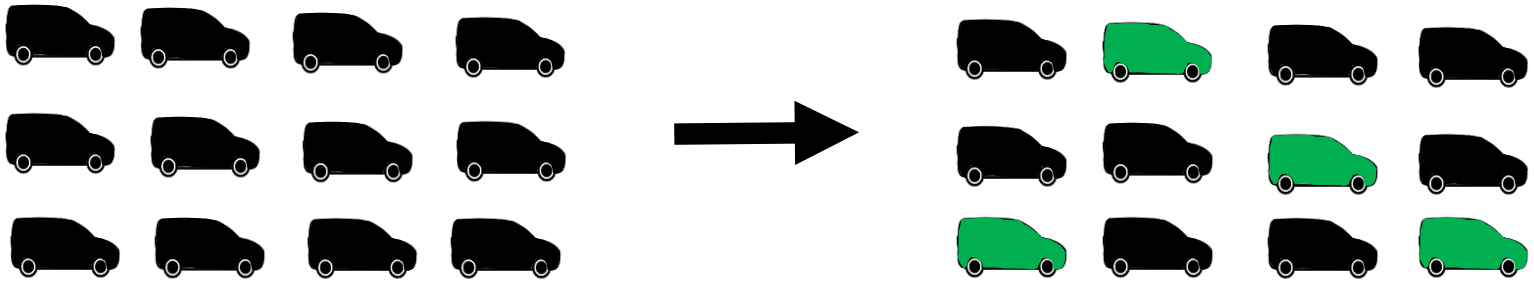
Transport intensity, kerbside use and CO_2 emissions of last-mile delivery

Freight sector	**Vehicle type**	**Km travelled per tonne of product delivered**	**GHG emissions per tonne of product delivered (kg CO_2)**	**Kerb occupancy by vehicle while parked per tonne delivered (m^2hrs)**
Hot meal on-demand same-day delivery	Bicycle	4,000	64	0
	Moped		340	323
	Car		716	1,620
Grocery on-demand same-day delivery	Moped	1,600	136	22
Grocery next-day delivery	Van	100	33	48
Parcel next-day delivery	Van	44	12	127
General freight operations	Rigid truck	11	9	6
	Artic.truck	4	3	2

Source: Allen et al., forthcoming

Some existing urban freight transport challenges cannot be met by using ‘clean’ vehicles

Carbon reduction and improved Air Quality at point of use	✓
Road traffic reduction and improved congestion	✗
Growing demand for kerbside space	✗
Growing demand for overnight vehicle recharging and storage space	✗



- *Vehicle road traffic & kerbside demand will not be helped by introduction of clean vehicles*
- *Could even worsen if average vehicle carrying capacity reduces*
- *Need for operational and behavioural change and policy-maker intervention*

List of FTC 2050 initiatives investigated

Operational initiatives

- On-foot portering delivery systems
- Depot location closer to delivery area
- Optimised routing for driving and walking
- Relaxing timed deliveries
- Company collaboration in parcel deliveries
- Greater use of collection points / locker banks

Technological initiatives

- Greater use of clean road vehicles
- Tech to help find entry point to buildings
- Aerial drones
- Pavement droids
- Autonomous vehicles

Planning/fiscal policy measures

- Removing ‘free’ delivery offer / delivery tax
- Banning personal deliveries to workplace
- More deliveries outside peak hours
- Concierge services in large buildings

Assessment per parcel of:

- CO_2 emissions
- Distance travelled
- Kerbside time
- Operating cost

Consideration of:

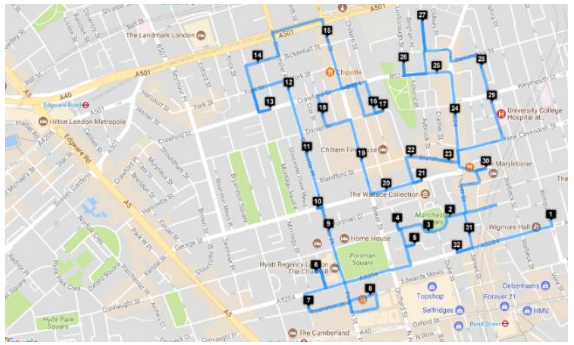
- Proportion of parcels to which applicable
- Barriers to implementation
- Timescale for implementation

Potential benefits of individual FTC initiatives (I)

- **Clustering and routing (driving & walking)**

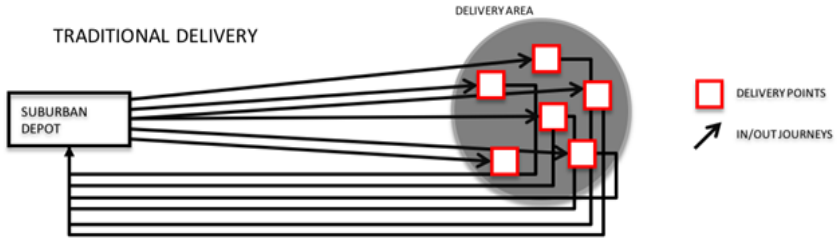
Observed sequence of visits on the round (46 vehicle stops)

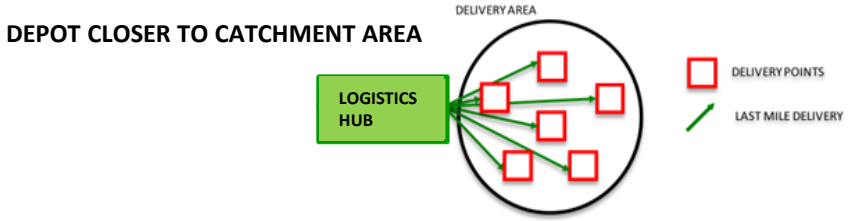
Optimised round using the 33 suggested clusters



- ***Reductions of up to 54% in driving time and 25% on overall delivery time by optimising the driving alone***
- ***Reductions of up to 59% in driving time and 32% on overall delivery time if there is flexibility on changing the walking sequences***

- **Depot location closer to delivery catchment area**

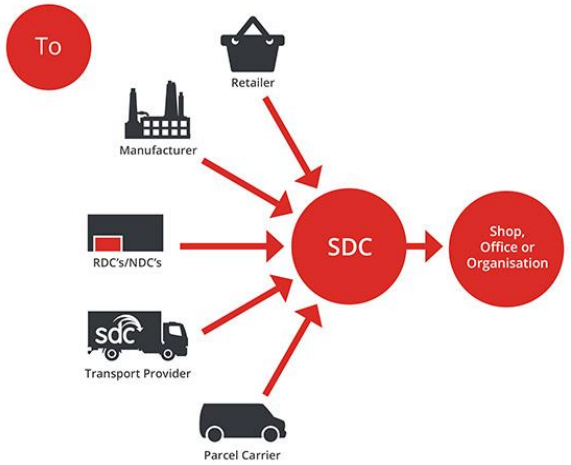




- ***50% reduction in total driving distance and 15% reduction in total driving time and related fuel savings/GHG emissions***
- ***Scope for electric vehicles but challenge is obtaining affordable sites***

Potential benefits of individual FTC initiatives (II)

- **Company collaboration in delivery activity (using a 'carrier's carrier')**



Before: 10 vehicle rounds despatched from 3 different operations/depots
After: 7 vehicle rounds despatched from one depot

- ***25% reduction in vehicle km and CO_2, 10% reduction in kerbside time, 15% reduction in vehicle operating costs***
- ***Assumes no change in vehicle size used so, with vehicle change, could be greater***

- **On-foot porters carrying out final leg of delivery**

- ***Can provide transport and environmental benefits now in dense urban areas***
- ***Network of porters could be used with autonomous (driverless) vehicles when available***

Online shopping and last-mile delivery: Recommendations by stakeholder group

Retailers

Consumers

Delivery companies

Land owners / developers

Policy makers

Property/building managers

Briefing report currently being developed in SRF project Centre for Sustainable Road Freight: http://www.csrf.ac.uk/

Contact details and project websites

- Julian Allen, University of Westminster - email: allenj@westminster.ac.uk
- Freight Traffic Control 2050: http://www.ftc2050.com/
- Centre for Sustainable Road Freight: http://www.csrf.ac.uk/

Session 3

Cities working with the freight industry

NATIONAL INFRASTRUCTURE COMMISSION

John Bourn

North East Freight Partnership

NATIONAL INFRASTRUCTURE COMMISSION

North East Freight Partnership – case study

The North East Freight Partnership

Delivering Safe, Sustainable & Efficient Freight throughout the North East of England

Challenges to the sector

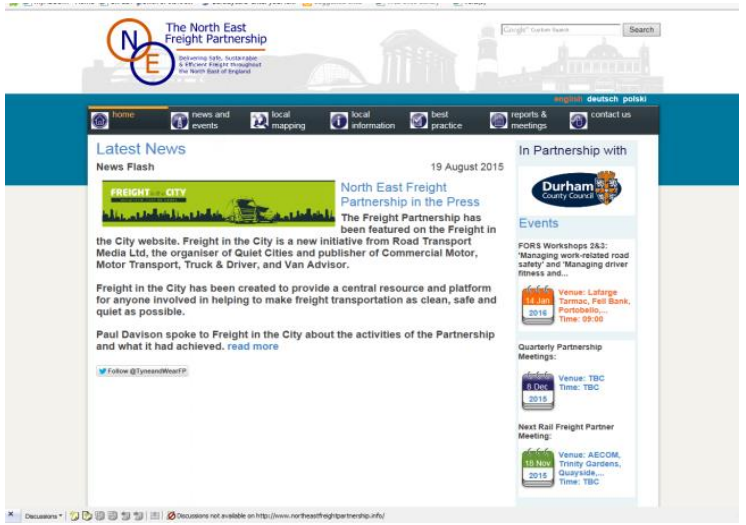
- Skills shortage
- Low margins
- Highly competitive
- Air quality/carbon agenda
- Vulnerable road users
- Changing nature of supply chain (e-commerce)

Why Establish a Freight Quality Partnership?

- ‘One voice’
- Address issues
- Identify opportunities
- Improve efficiency of the sector
- Share ideas/encourage innovation
- Raise the profile of the freight and logistics sector
- Forum for consultation / engagement with the sector

How are they organized?

- Local, regional or sub-regional scope
- Public sector often performs ‘secretariat’ role
- Voluntary
- Defined aims and objectives
- Regular meetings
- Members can include operators, shippers, retailers, trade bodies, LAs, academics, Highways England
- Communications are key



Example Outputs

- Meetings
- Mapping
- Feasibility Studies
- Seminars
- Reports
- Best Practice
- Training
- Newsletters

Pitfalls

- Loss of momentum
- Funding issues
- Personnel Change
- Changing nature of the sector

Case Study: North East Freight Partnership

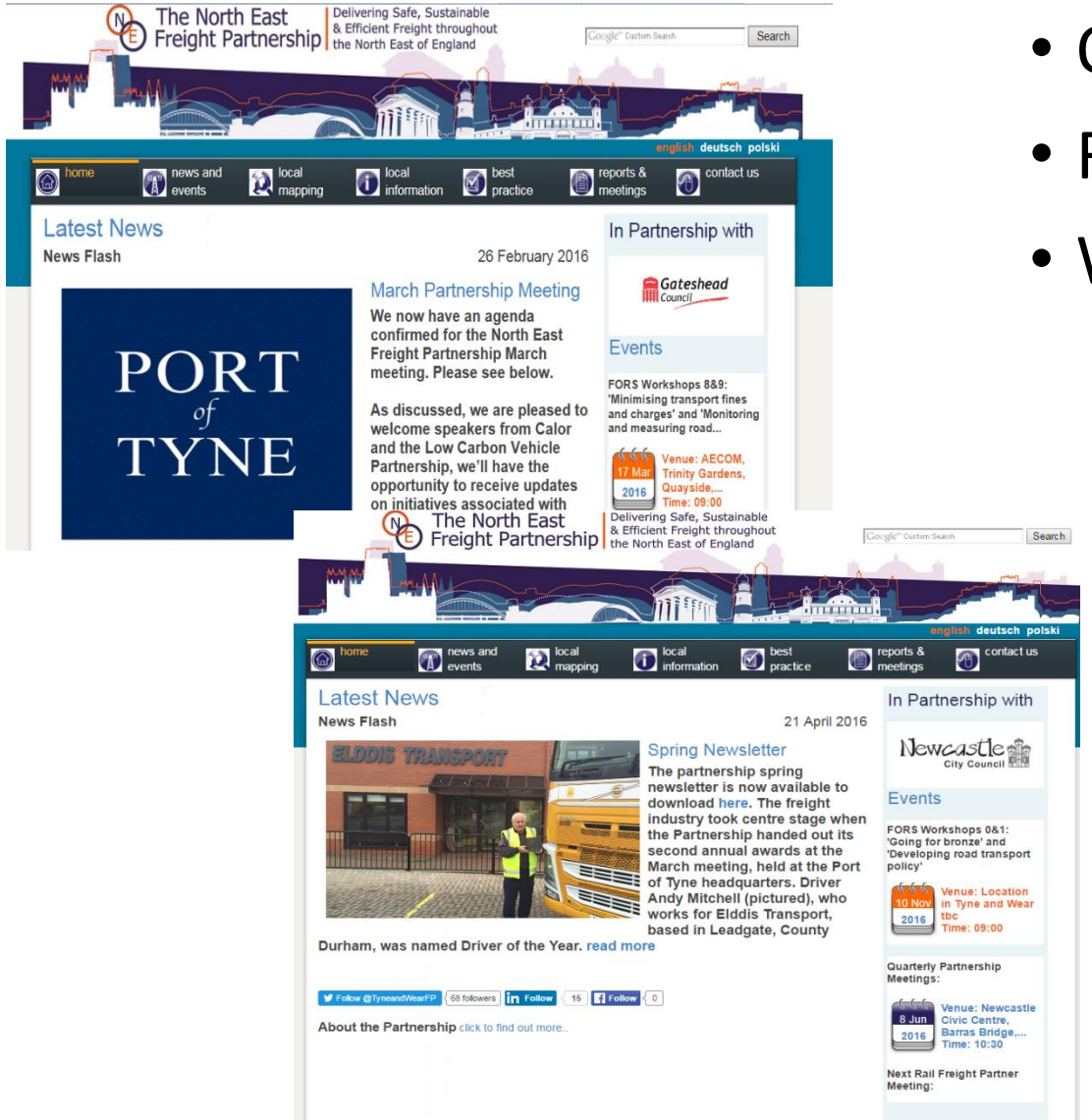
- Established 2005
- Regional Scope
- Led by Transport Strategy Unit on behalf of NECA / NTCA, managed by AECOM

The North East Freight Partnership

Delivering Safe, Sustainable & Efficient Freight throughout the North East of England

Case tnership

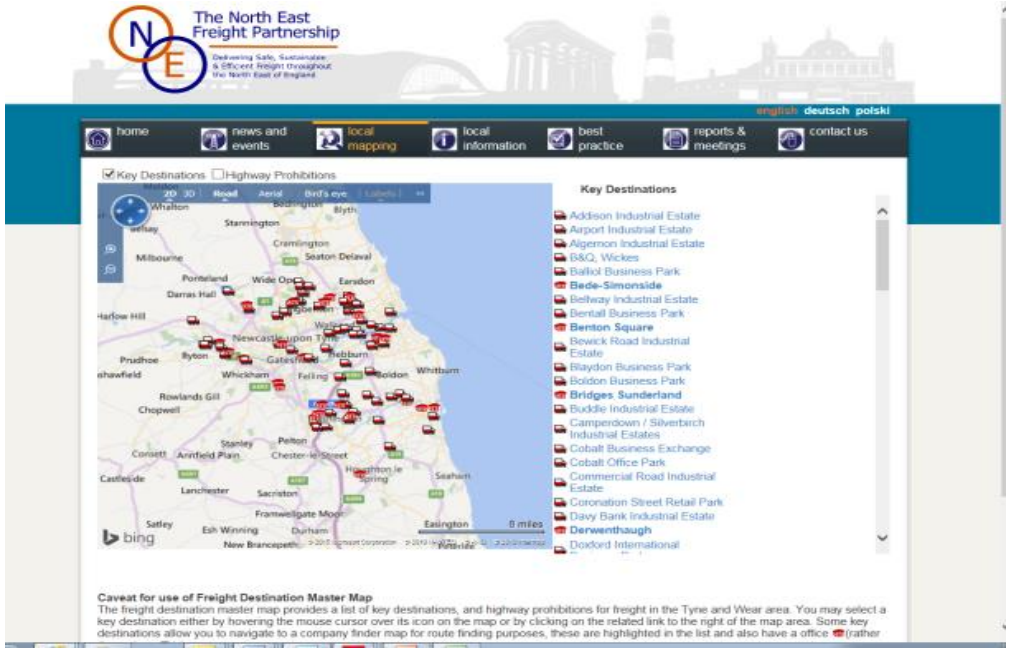
Activities: General



- Quarterly Meetings
- Freight on Rail Group
- Website

Activities: Information for Drivers and Road Freight Operators

- Online Mapping
- Truck Information Points
- Best Practice Guidance
- Signage Strategy



Activities: Vulnerable Road Users

- Safe Urban Driving courses
- HGV Cycle Safety Technology Trial

Activities: Research and Data Collection

- Hexham Lorry Parking
- Freight Exchange Trial
- Intelligent Loading Bays
- Student Support
- Driver Origin and Language study
- Van Study

Activities: Cycle Logistics

Activities: Fleet Operator Recognition Scheme (FORS)

Activities: Promotional works

- Annual Leaflet
- Biannual newsletters
- Twitter @tyneandwearFP
- LinkedIn
- Facebook
- Events
- Trade Publications

Summary

- Wide range of activities
- Open to all
- Sustainable
- Targeted
- Feasible
- Relevant
- Evolving

The North East Freight Partnership

Delivering Safe, Sustainable & Efficient Freight throughout the North East of England

Key Points and Lessons Learned

- The nature of FQPs varies significantly
- FQPs have a history of encouraging collaboration
- Efficient urban deliveries
- Having a range of contributors is essential
- Tangible results key
- Collaboration is likely to grow in importance

Qu s

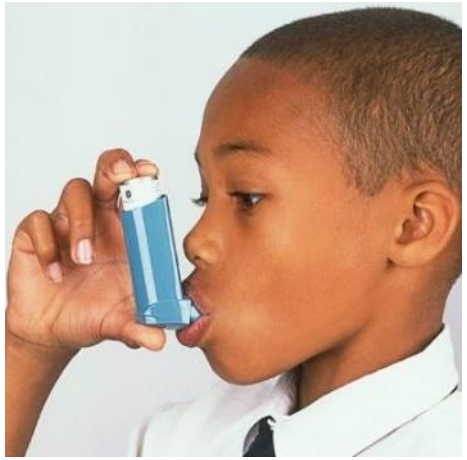
Adam Moody

Transport for London

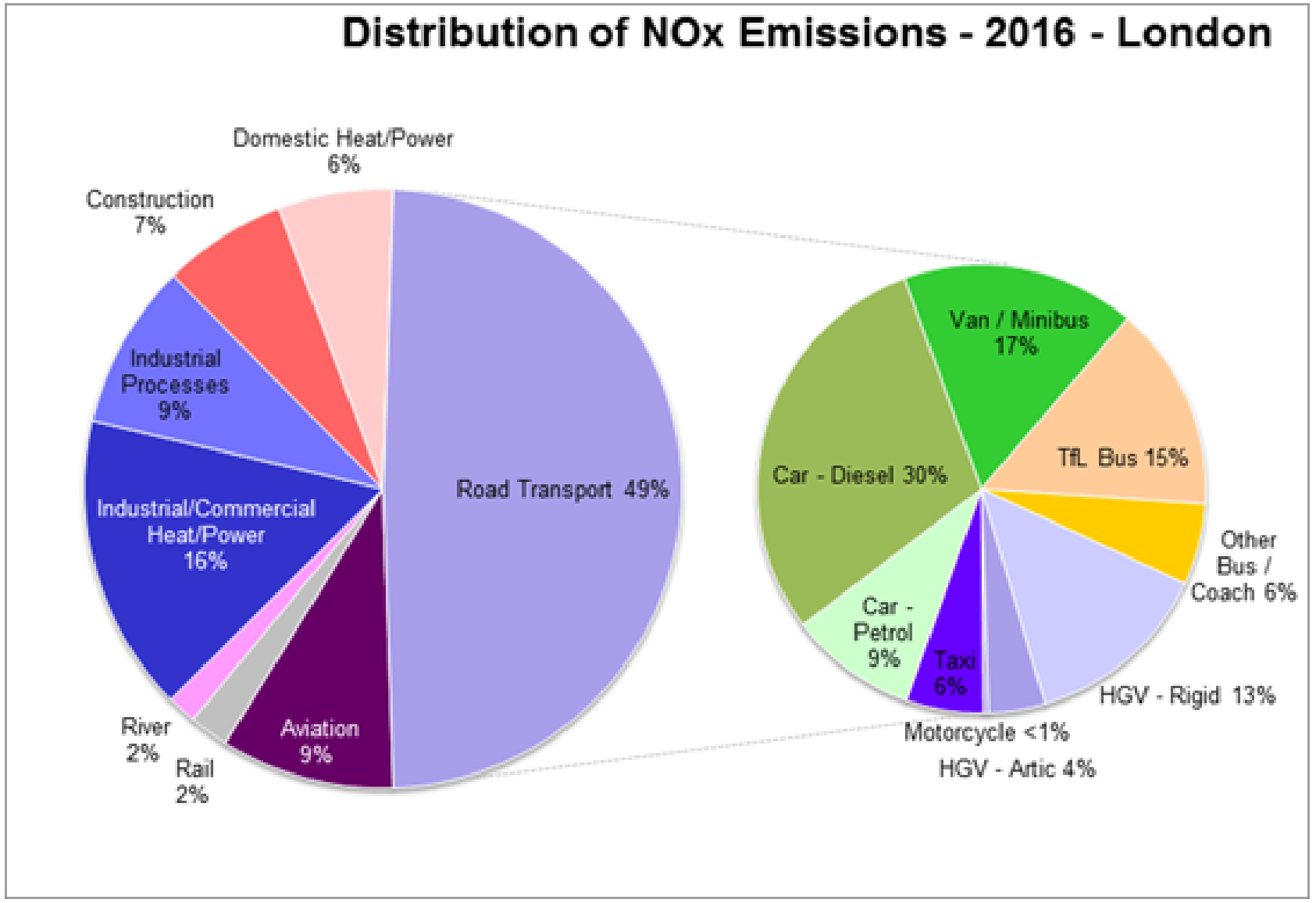
NATIONAL INFRASTRUCTURE COMMISSION

The context for action

- Air pollution is one of the most significant challenges facing London, affecting the health of all Londoners.
- There are locations in every borough that exceed legal limits for NO_2.
- The health impacts associated with air pollution fall disproportionally on our most vulnerable communities, affecting the poorest and those from minority ethnic groups more acutely.



The NO_2 from Road Transport problem



Ultra Low Emissions Zone

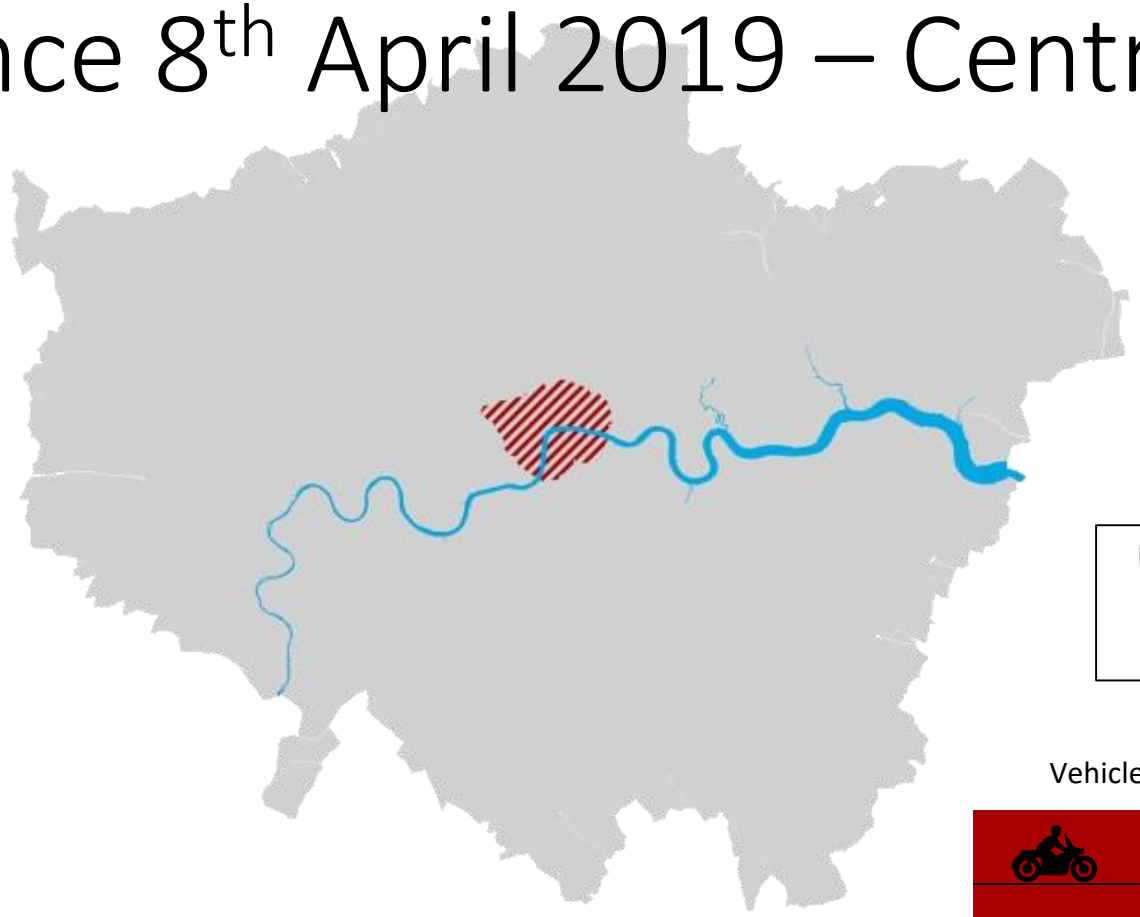
EVERY JOURNEY MATTERS

Since 8th April 2019 – Central London ULEZ

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

*Vehicle class is indicative only, additional vehicles are affected

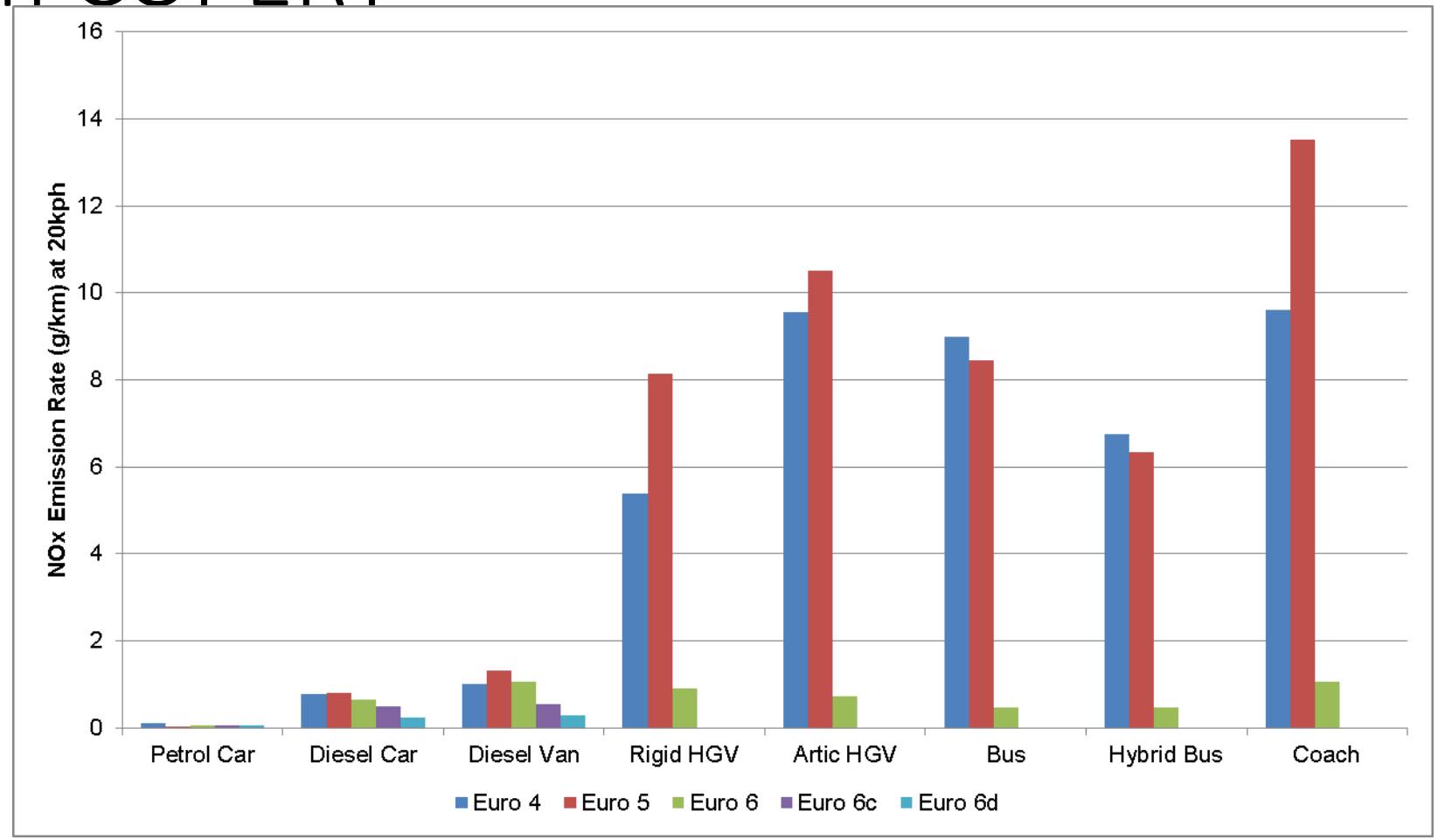
**Minimum emissions standard is for NOx and PM unless otherwise stated



ULEZ 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

On road NOx performance of Euro standards – from COPERT



ULEZ has already had an impact

- 77 per cent of vehicles driving into the zone are now compliant
- 13,500 fewer non-compliant polluting vehicles seen in the zone on an average day
- Londoners and businesses are using cleaner transport alternatives

LEZ 2020 & ULEX 2021

26th October 2020 – Strengthening of LEZ standa

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

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

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

25th October 2021 – Expansion of ULEZ

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

*Vehicle class is indicative only, additional vehicles are affected

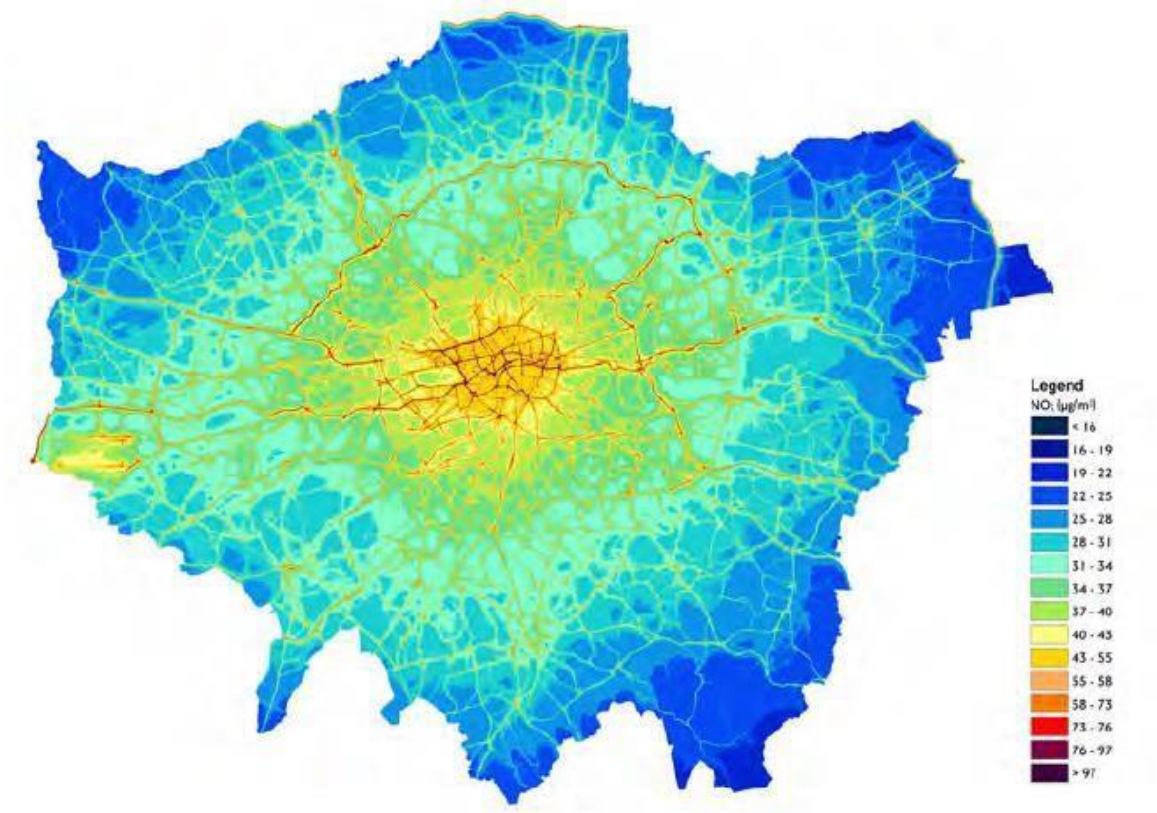
**Minimum emissions standard is for NOx and PM unless otherwise stated

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

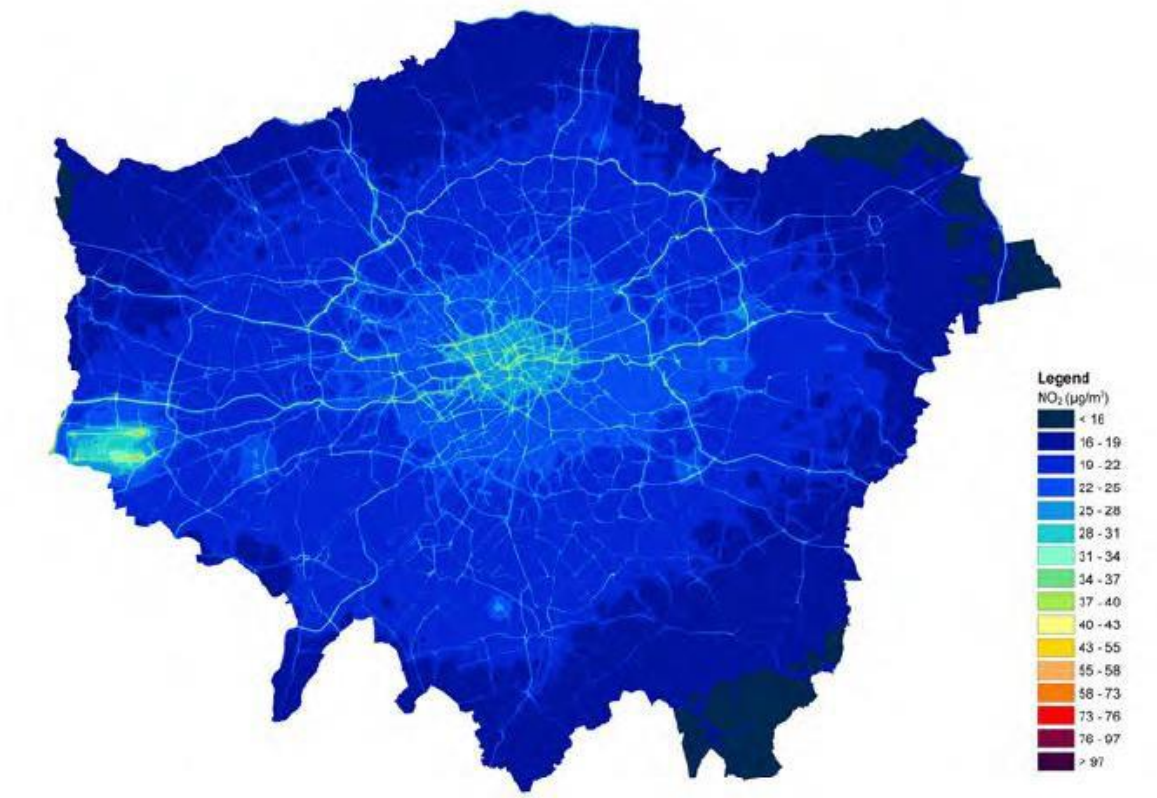
Impacts of ULEZ

What's the situation like now?



- Over **2 million Londoners** live in areas that exceed legal limits for NO2, of which over 400,000 are children under the age of 18.
- **Over 400 primary and secondary schools** in areas that exceed legal air quality limits
- In 2013, **90-100%** of major roads in inner and central London (and 49% in outer London) exceeding NO_2 limit

What will it look like in 2025?



With all air quality package measures implemented:

- **No primary or secondary schools** in areas that exceed legal air quality limits
- **Only 2%** of road kms in London expected to exceed NO_2 limit values
- Gap in air quality between high and low income areas of London **reduced by 71%.**

Other measures:-

What else are we doing?

Low Emission Bus Zones

Cleaning up our bus fleet

Cleaning up our taxi fleet

EV infrastructure

London’s current EV infrastructure projects

Go Ultra Low City Scheme (GULCS)

- £13 million from Office for Low Emission Vehicles for London Boroughs to install slow and fast charge points
- Residential workstream
    - 1,500 (majority are lamppost chargers) currently delivered across 23 boroughs
    - Expected to deliver over 2,500 across 29 boroughs and two community charging hubs (6 or more charge points grouped in an off-street residential location)
- Car and van sharing workstream
    - 26 dedicated charge points in 5 boroughs by end of 2020
    - State Aid rules have limited uptake
- Neighbourhoods of the Future workstream
    - 9 area-based projects which focus on delivering innovative policies to encourage the use of ULEVs

London’s current EV infrastructure projects

TfL Rapids Project

- £18.2 million from Office for Low Emission Vehicles to enable sites for installation of rapid charge points
- Target: 300 rapid charge points by December 2020
- Delivered to date: 232 rapid charge points (73 are taxi dedicated) including a rapid charging hub in Stratford
- Sites are tendered to charge point operators on our Rapid Charge Point Concession Framework
- Sites are predominantly TfL or borough land with some 3rd party sites
- Operators are responsible for financing, installing, operating and maintaining charge points

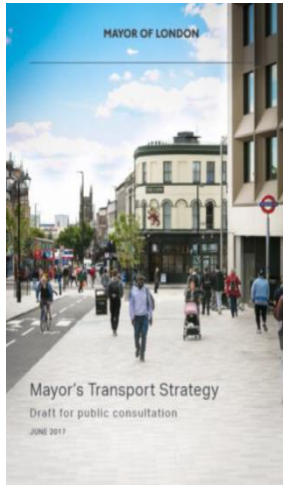
Vision Zero and the Direct Vision Standard

EVERY JOURNEY MATTERS

Vision Zero: No loss of life should be considered acceptable or inevitable

- The Mayor's Transport Strategy commits to a Vision Zero approach to road danger reduction

Eliminate death and serious injuries on our transport network by 2041

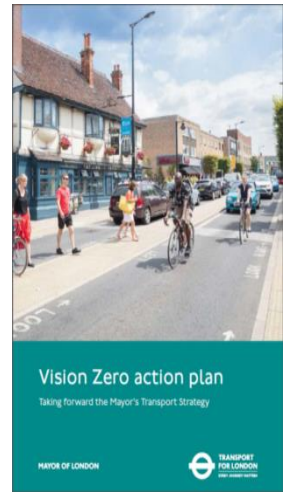


Safe Speed

Safe Roads

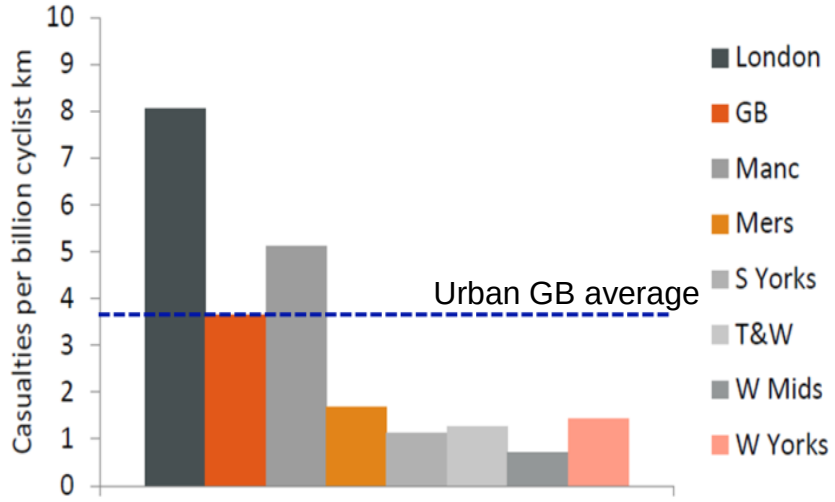
Safe Vehicles

Safe Behaviours



London has a particular problem with HGVs and VRUs

- In London, HGVs were involved in 136 fatalities between 2010-2016
  - Most (107) were with larger HGVs
- HGVs are disproportionately involved in fatalities with pedestrians and cyclist in London
  - HGVs make up 4% of road kms
  - But were involved with over 70% of cyclist and 20% of pedestrian fatalities over the past three years
  - London much worse than rest of UK urban areas



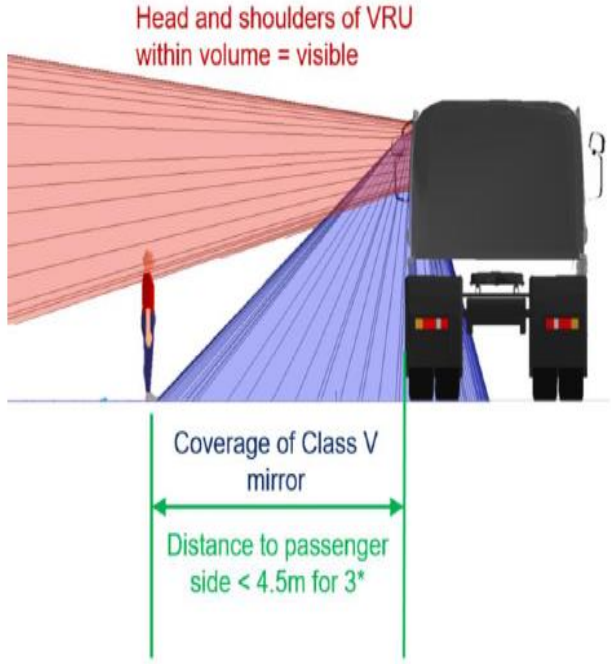
Cyclist casualties from collisions with HGVs – London v GB regions 2006-2015

- Analysis of UK accident database (STATS 19) shows that poor vision is a commonly cited cause of HGV incidents

Direct Vision Standard :- star rating boundaries

Setting rating boundaries

- To meet ‘one star’, at least the head and shoulders of 99 per cent of the European adult population must be seen within an ‘acceptable’ distance at the front and side
- The two, three, four and five star rating boundaries are set by equa
  the volume of space over a
  one star measurement to sl
  direct vision performance



HGV safety permit

October 2019

Scheme ‘go-live’

October 2020

0-star banned unless safe system met

October 2024

0-2 star banned unless progressive safe system met

Safe s[illegible]uirements

Note: Fitting a safe system **will not change your vehicle's star rating**

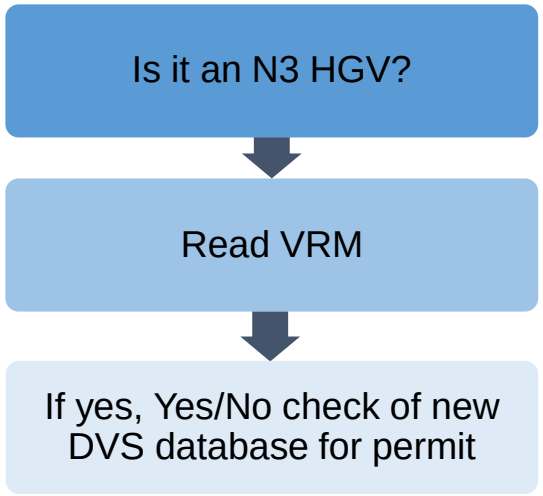
Compliance

ANPR camera based system to check if a permit is in place or not

A decriminalised traffic order (TRO)

- Easily enforceable permit scheme that is already de-criminalised
- Allows for two levels of penalty
  - £550 for operators / hauliers
  - £130 for drivers

On-street enforcement collaborations



Thomas Parker

City of London Corporation
(No slides)

NATIONAL INFRASTRUCTURE COMMISSION

Natalie Chapman

Freight Transport Association
(No Slides)

NATIONAL
INFRASTRUCTURE
COMMISSION

Closing Remarks

Bridget Rosewell, NIC Commissioner

NATIONAL INFRASTRUCTURE COMMISSION