

Cycling logistics study

CRP

26/02/2019

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Introduction to cycle freight

Activity in London

Learnings from Industry

Recommendations for Boroughs

There are 5 main types of cargo bikes, with the quadracycle being a relatively new addition to the market offer

Standard-frame bicycle



Pushbike



Messenger bike

Cargo bike



Front-loading



Rear-loading

Cargo trike



Front-loading



Rear-loading

Trailer



Bicycle-towed



Bicycle and/or hand-towed

Cargo Quadracycle



Open



Covered

Some quadracycles (if over 250W) are classified as micro vehicle (category L) thus not 'bikes' i.e. they require license & insurance and can't use cycle lanes.

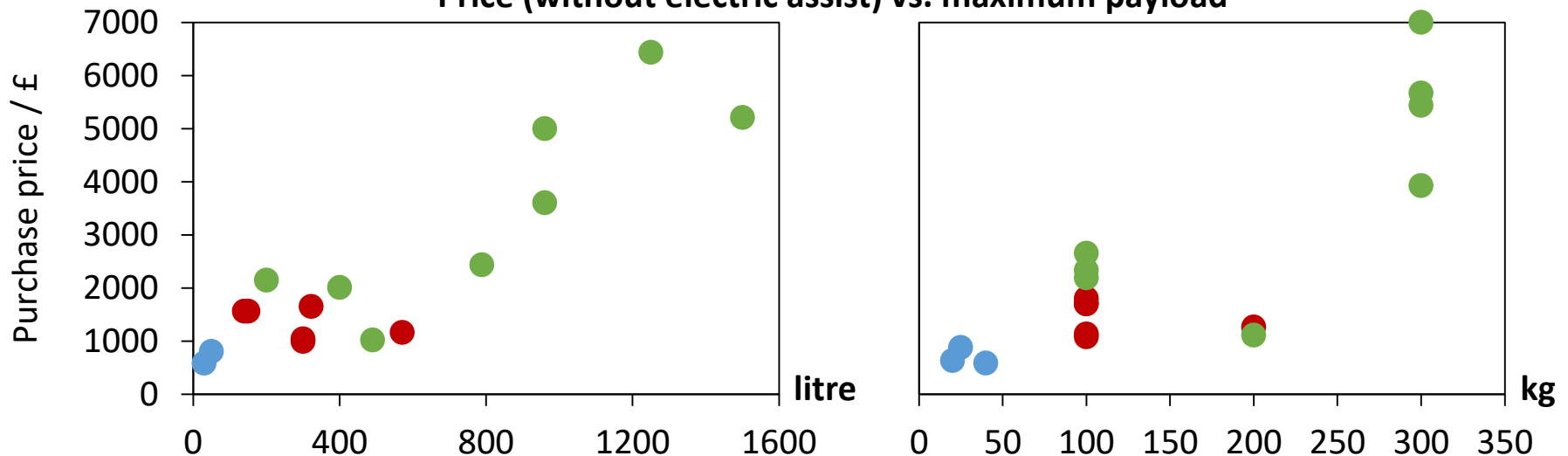
Larger cycle freight vehicles can carry heavier payloads, however are generally less manoeuvrable

Typical payload capability and width of cycle freight vehicles

	Messenger	Cargo bike	Cargo trike		Trailer	Quadracycle
Payload (kg)			Front-load	Rear-load		
Range	20 – 150	100 – 275	100 – 300	200 – 300	60 – 150	100 – 300
Typical	25	100	100	300	60	150
Payload (L)						
Range	30 – 80	200 – 800	200 – 2500	500 – 1700	200 – 2100	500 – 2000
Typical	30	300	300	1000	300	1000
Width (cm)						
Range	50	50 – 90	80 – 90	80 – 120	80 – 110	80 – 90
Typical	–	70	85	100	100	86

● Messenger ● Front-load cargo ● Rear-load cargo

Price (without electric assist) vs. maximum payload



Top: Based on a survey of 5 trailers and 53 bike, trike, quad models conducted in Dec 2018. Of these 53 models, 32 are unique, with the remainder being variations in the cargo box type/size. Bottom: Oct 2017

Benefits of cycling freight from a city perspective – reduction in local air pollution and carbon emissions

CONTEXT

- Transport is a major contributor to air pollution, accounting for 63% of NO_x, 21% of CO₂ and 52% of PM₁₀ emissions in London in 2010¹ >> Freight vehicles account for 20-30% of these emissions²
- Freight vehicles currently make up a third of traffic in the central London morning peak, and the Mayor aims to reduce this by 10% on current levels by 2026

BENEFITS FOR CITY

- Emission savings from replacement of motorised vehicles – see right
- Noise reduction
- Congestion reduction in areas where delivery vans/trucks are numerous (tend to drive around for parking space)
- Safety from replacement of motorised vehicles?

Annual savings based on 80 km/day

- 9.8 tonnes of CO₂
- 7.4 kg NO_x
- 60 g PM
- 6 tonnes of CO₂
- 14.1 kg NO_x
- 21 g PM



POTENTIAL UPTAKE IN LONDON

- Vehicle displacement projections show that a reduction in ~11,500 LGVs in Central London is possible, under a high uptake scenario. In some areas can be as much as 14%

Estimated cycle freight uptake potential for London under High and Low uptake scenarios³

Scenario	Reduction in daily number of LGVs crossing cordon		Reduction in annual LGV vehicle km (millions)	
	Central London	Inner London	Central London	Inner London
Low (1%)	1,500	2,500	0.9	6.8
High (6%)	11,500	19,000	6.5	42.6

1 – Transport Emissions Roadmap, Cleaner transport for a cleaner London, 2014. 2 - TfL ULEZ consultation.

3 - Strategies to Increase Cycle Freight London, Element Energy, 2017

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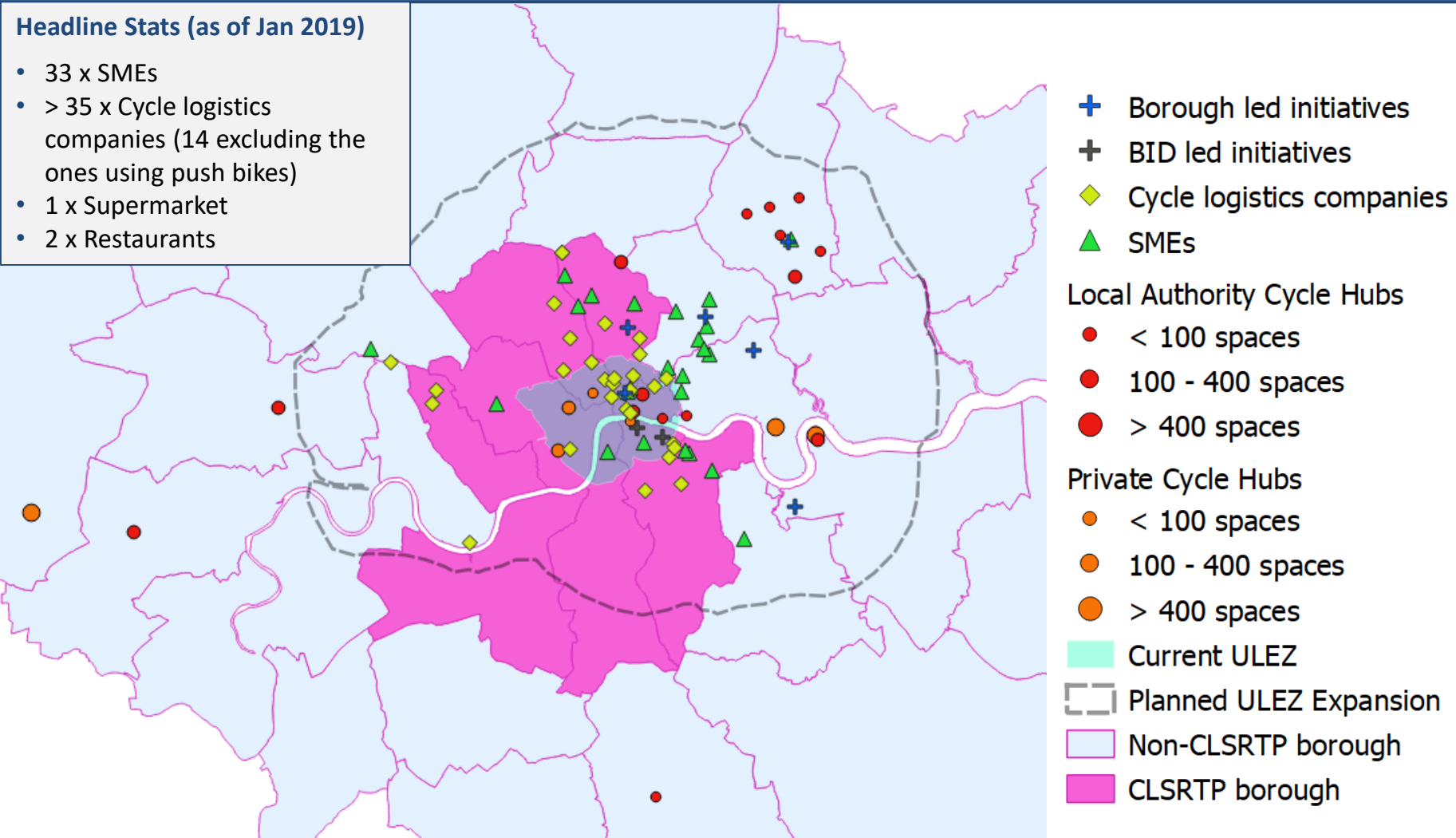
Learnings from Industry

Recommendations for Boroughs

Cycle freight activity is clustered in some CLSRTP boroughs – with those North of the river experiencing more activity than those South

Headline Stats (as of Jan 2019)

- 33 x SMEs
- > 35 x Cycle logistics companies (14 excluding the ones using push bikes)
- 1 x Supermarket
- 2 x Restaurants



- + Borough led initiatives
 - + BID led initiatives
 - ◆ Cycle logistics companies
 - ▲ SMEs
- Local Authority Cycle Hubs
- < 100 spaces
 - 100 - 400 spaces
 - > 400 spaces
- Private Cycle Hubs
- < 100 spaces
 - 100 - 400 spaces
 - > 400 spaces
- Current ULEZ
 - Planned ULEZ Expansion
 - Non-CLSRTP borough
 - CLSRTP borough

Policy Driver: Introduction of new £2 million government funding to support uptake of e-cargo bikes will be launched in 2019 Q2/Q3– increase in vehicles across the city expected

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Market segmentation of organisations using cycle freight

In general, there are 3 types of organisations currently using cycling freight within London, each with unique characteristics and different needs:

Logistics sector – Traditional

Established delivery companies that are switching some of their fleet to cycle freight for the last mile or express delivery services

Specific needs e.g. micro-distribution hub for last mile deliveries and cycling hubs to store bikes/provide services to cyclists

Key players:



Logistics sector – New

Dedicated cycle freight logistics companies. Their business model is based on the increased convenience/flexibility of bikes

Require a large number of customers within a relatively small radius (most ~5 miles)

Key players:



SMEs and service providers¹

Small businesses using cargo bikes for their own deliveries or carrying their service equipment (e.g. plumber, hairdresser)

Each have unique requirements for cargo box dimensions and functionalities e.g. secure lock or hot/cold box

Example players:



Note: One supermarket (Sainsbury's) has trialled the delivery of some of groceries by bike, however this sector is not yet established and it is not yet clear what the requirements will be, therefore we have not included it in the segmentation

There are a number of advantages for the use of cycle freight within industry



Speed & Reliability

- The ability to bypass traffic using cycle lanes and more direct routes, and with fewer parking restrictions, results in a 25-50% reduction in journey time
- Cycles¹ less prone to traffic disruption from accidents/roadworks, so more reliable journey times
- Cycles have more freedom to park, and can park closer to their destination

Flexibility of Service

- Greater speed and reliability allow for more flexibility in when deliveries can be made and the range of delivery services offered



Low running cost

- Cycle freight eliminates the risk of parking issues such as penalty charge notices (PCNs), which on average cost a fleet £1,500 per year per van²
- No or low fuel costs (EAPC dependent). No access charges, such as congestion or T-charge

Low capital cost

- As a low emissions vehicle, cycles are a cost-effective option (e.g. compared to an electric van)



Health & PR benefit

- Health benefit for the employee, as cycle logistics offers much more active travel
- Cycle freight is viewed more positively by the public



Reduced Noise

- Inherently quieter than deliveries made by vans or HGVs
- Suited to deliveries in areas/at times of the day that are unsuitable for motorised vehicles

1 – Cycles here refers to a cargo bike or trike

2 – Calculated based on *FTA PCN Survey 2012*, and van fleet sizes from *Van travel trends in Great Britain*, RAC Foundation, 2014

Emerging findings from Industry – Main barriers to uptake (1)

1) Lack of space

Logistics sector

- Difficulties with locating appropriate space for micro-distribution and/or bicycle storage
- Option for using underutilised car parks is becoming more apparent, however expensive rates can be prohibitive in making a business case for cycle freight

SMEs and service providers

- Cargo bikes/trikes are bulky and for SMEs, space on premises (or at home) may be limited
- Option to share storage sites with logistics operators, or encourage councils to install appropriate cargo bike parking at on-street residential or business locations

2) Infrastructure/Accessibility

- Some organisations have entire fleet made up of cargo bikes because cargo trikes take up too much space and therefore can't make effective use of cycle lanes or efficient cut-throughs
- Those that use trikes often have training schemes which focus on when it is appropriate to use a cycle lane and when not – they want to make sure that riders can make dynamic assessments
- London infrastructure often inhibits use of cargo bikes e.g. presence of gates and bollards, also canal pathways are too narrow
- Some riders have also found cars are not very happy with the presence of cargo bikes on roads

3) Regulation

- More clarity is needed regarding the power rating for electric bikes. All e-quad bikes are capable of doing 1 kW peak load but the law says 250 W 'rated' (steady state), recommend regulating speed not power
- Also discussion on potential for using walker trailer solution with power devices on pavements is needed

Emerging findings from Industry – Main barriers to uptake (2)

4) Maintenance – Logistics sector

- Cargo bikes/trikes have high annual mileage which results in issues with brakes, electric motor (if EAPC) etc. and requires downtime of the vehicles, thus significantly impacting operations (and operating cost)
- Some companies switch to vans (or smaller pushbikes) for deliveries when cargo bikes are down
- Organisations are also finding difficulties with outsourcing maintenance – different costs and wait times, and as such they are often moving to conducting maintenance (and sometimes manufacture) in-house
- Trikes are a particular issue as they are a newer industry
- Expect cargo bikes to last 5 years, but sometimes written off in 18 months

5) Awareness and capability

- Challenges in convincing consumers that cargo bikes/trikes are a viable option for delivery, particularly in terms of security of delivery
- Difficulties in pricing – some consumers are willing to pay more for the service, and some less, depends on consumer perception
- For traditional logistics organisations, also challenges with convincing internal staff that a change in operation to cycle freight is beneficial in some cases

6) Lack of councils leading by example – Logistics sector

- Some logistics companies focusing on encouraging boroughs to use their services for their own procurement, however difficult to get critical mass of utilisation
- Changing internal processes within boroughs take time¹
- Industry believe that boroughs leading by example is important – will help cycle freight companies to win the market and then can provide services at competitive rates

1 – For example took 4 years in Cambridge for the council to incorporate cargo bikes into their procurement process

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Review of current cycle freight activity within the CLSRTP boroughs has shown that there are 3 main stages of borough engagement

1

Stage 1 – No (or little) current activity

- Boroughs generally have little knowledge/awareness of the potential for cycle freight within their area, **AND/OR**
- Boroughs may perceive barriers to cycle freight too high to implement initiatives



2

Stage 2 – Some small-medium cycle freight initiatives

- Boroughs have implemented some cycle freight schemes – ranging from owning own cargo bikes to providing cycle hire/grants for SMEs
- Whilst boroughs have good knowledge and some options for future plans, cycle freight is not fully integrated into borough policy



Those at Stage 2/3 typically have more appropriate conditions to encourage cycle freight

3

Stage 3 – Cycle freight is a priority, embedded into transport strategy

- Cycle freight is well established within the borough, with larger schemes operating such as micro-distribution hubs and storage for bikes
- Borough is aware of the significance of cargo bikes for the future of freight and has integrated cycle freight activities into wider transport strategy

Recommendations for boroughs depend on what stage of cycle freight engagement the boroughs are currently at – *Early Stage*

Borough Stage

Recommendations

1

1) Identify opportunities for cycle freight within your borough

Potential for BID assistance

- Evaluate the types of industries/employment/retail density within the borough to understand the customer base:

Large offices with high concentration of parcel deliveries

OR

High number of SMEs making deliveries e.g. food produce

- Evaluate the local conditions which favour cycle freight – e.g. congestion, motor vehicle restrictions, narrow streets and low motor vehicle parking available

Note, organisation type and conditions may differ significantly even within the borough

1

2) Engagement with Industry¹

Key Case Study: The ZEN

- Understand the delivery needs within the borough – what is important for those organisations requiring parcel delivery/courier services
- If SME focused, raise awareness of the use of cycle freight
 - This may be through questionnaires, door to door targeting, social media or promotional ‘pop-up’ events
 - Set-up cargo bike hire scheme / grants for purchase of cargo bikes
 - Also if feasible, boroughs could provide training for these SMEs
- Collaborate with BIDs to apply for upcoming Healthy Streets Funding – there is considerable interest in cargo bikes funding

Recommendations for boroughs depend on what stage of cycle freight engagement the boroughs are currently at – *Early to Mid Stage*

Borough Stage

1

2

Recommendations

3) Lead by Example

Key Case Study: Camden

- Consider purchasing own cargo bikes for some council activities e.g. promotional events, park maintenance, internal parcel delivery or any other activity, where a car/van can be replaced
- When outsourcing delivery services, procurement practises for choosing cycle freight should be promoted where possible

2

3

4) Making space - Storage

Potential for BID assistance

- Once assessment of organisations has been completed (Recommendation 1), start to look for appropriate space for cargo bikes within the borough

Dedicated cycle logistics hubs

- Evaluate potential for use of underutilised car parks for micro-distribution hubs and secure bike storage
- If the council doesn't own much land, engage with private car park operators to see if they would be interested renting out their space to cargo bikes
- Opportunity for cycle logistics operators and SMEs to share the space

OR

Residential/business cargo bike parking

- Assess space outside SMEs/local market places to see whether there is potential for cargo bike parking spaces
- Also consider asking SMEs if they would prefer parking spaces near their homes in residential areas
- Council could provide lockable cargo bikes stands (potentially in those spaces that are currently for cars/vans)

Recommendations for boroughs depend on what stage of cycle freight engagement the boroughs are currently at – *Mid to Late Stage*

Borough Stage

Recommendations

2

5) Making space – Accessibility

- Assess current cycling infrastructure within the borough and potential to create more cycle friendly routes e.g. quietways or wider cycle lanes
- Also consider any street furniture/access restrictions e.g. bollards and gates that could be removed or changed

3

6) Develop cycle freight strategy

Case Study: City of London and Camden

- Engage with different departments within the borough to develop a dedicated cycle freight strategy, outlining future plans and targets for the borough
- Also reach out to other boroughs to learn from their experiences of cycle freight

2

7) Bigger picture: Support London-wide cycle freight activity

- Help to raise standards of cycle freight by contributing the development of an industry-wide Code of Conduct
- Monitor schemes using defined metrics e.g. number of businesses using the cycles, number of items delivered, motorised vehicle trips avoided etc.
- Share learnings with other boroughs/attend workshops or conferences – particularly to help guide those at an earlier stage of engagement

3